DEPARTMENT OF THE NAVY
BOARD OF INSPECTION AND SURVEY
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VIRGINIA BEACH, VA 23459-3295

INSURVINST 4730.2G
16 Mar 12

INSURV INSTRUCTION 4730.2G

From: President, Board of Inspection and Survey

Subj: TRIALS AND MATERIAL INSPECTIONS OF SUBMARINES

Ref: (a) OPNAVINST 4700.8(Series) Trials, Acceptance, Commissioning, Fitting Out, Shakedown, and Post Shakedown Availability of U.S. Naval Ships Undergoing Construction or Conversion
(b) OPNAVINST 4730.7(Series) Material Inspection of Submarines by the Board of Inspection and Survey
(c) OPNAVINST 4730.5(Series) Trials and Material Inspections of Ships Conducted by the Board of Inspection and Survey
(d) COMFLTFORCOMINST 4790.3 Joint Fleet Maintenance Manual
(e) OPNAVINST 5100.19(Series) Navy Safety and Occupational Health Program Manual for Forces Afloat
(f) OPNAVINST 5090.1(Series) Environmental Readiness Program Manual

Encl: (1) INSURV Submarine Trial/Inspection Guidance Manual

1. Purpose. To provide guidance in the preparation for, and conduct of, trials and inspections of submarines by the Board of Inspection and Survey (INSURV). This instruction provides information to assist responsible authorities in preparing submarines for presentation to the Submarine Directorate of the Board of Inspection and Survey.

2. Cancellation. INSURVINST 4730.2F.

3. Background. 10 U.S.C. 7304 requires a Board of Naval Officers to periodically conduct a Material Inspection of each naval ship and requires a report to the Secretary of the Navy when a ship is found unfit for further service. The material condition of all ships inspected is reported to the Chief of Naval Operations. The Board is also tasked by reference (a) to conduct trials as an independent verification of the readiness

conduct trials as an independent verification of the readiness of new construction submarines for acceptance for naval service and the readiness of conversion submarines for continued naval service. References (b) and (c) provide further guidance for the scheduling and conduct of submarine trials/inspections.

4. Action.

a. Procedures for conducting trials and inspections shall be specified by the President, Board of Inspection and Survey as directed in reference (c). This instruction provides the required procedures for the crews of the inspected ships.

b. Each INSURV Inspector is responsible for maintaining an up to date Inspector's Guide (IG) to ensure a consistent and standard inspection.

c. The Submarine Board, ships and authorities responsible for presenting ships for a Trial or Inspection to INSURV will be guided by enclosure (1).

//s//
R. O. WRAY

Distribution:

ASSTSECNAV RDA (ships)
CNO (N43, N6, N87)
COMNAVSEASYSCOM (PMS 392, 394, 397, 398, 399, 401, 425, 435, 450, SEA 08, SEA 07)
COMSPAWARSYSCOM (PMW 156, 173)
COMNAVSUPSYSCOM (SUP 04)
COMUSFLTFORCOM (N43)
COMCPACFLT (N43)
COMSUBLANT (N43)
COMSUBPAC (N43)
SNDL-FKP8 (SUPSHIPS)
SNDL-FKP7 (NAVSHIPYARDS)
NAVSEA DET SUBMEPP PTSMTH (Code 1851)
NAVSURFWARCENDIV SHIPSYSENGSTA Philadelphia PA (Code 91)

Table of Contents

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INSURV SUBMARINE TRIAL/INSPECTION GUIDANCE MANUAL

CHAPTER ONE

GENERAL ADMINISTRATION AND GUIDANCE FOR MATERIAL INSPECTIONS (MI)

1-1. Introduction. This chapter provides background, general guidance, administrative requirements, and instructions to the Responsible Authority for the advance preparation for an INSURV Material Inspection (MI).

1-2. Background. INSURV conducts inspections as an independent verification of the material condition of submarines. This includes:

a. Fitness of active submarines for continued service.

b. Navy Occupational Safety and Health (NAVOSH) and Environmental Protection program compliance as directed by the Chief of Naval Operations.

c. Surveys prior to decommissioning, which are not normally conducted on nuclear powered submarines.

1-3. Responsibility. The Responsible Authority and INSURV have specific responsibilities as follows:

a. The Responsible Authority is the officer or commander designated to prepare and present the ship. The TYCOM is the Responsible Authority for a MI; however, most tasks (except for scheduling) are usually delegated to the Commanding Officer of the ship. The Responsible Authority will:

(1) Coordinate with the INSURV scheduler to establish an Inspection date.

(2) Propose a MI agenda. A sample agenda (available on the INSURV website) will be mailed to the ship four to six months before the inspection. The ship should modify the sample agenda to reflect the actual systems/components installed. The proposed agenda should be submitted to INSURV 45 days before the inspection. The ship is responsible to identify in the

"Procedure" column of the agenda the appropriate procedure to be used to accomplish the INSURV assessment described in the "Evolution" column. Only approved procedures will be used to conduct assessments. Early liaison with INSURV members and/or the ISIC is recommended to resolve any questions relating to this task.

(3) Ensure the ship is adequately prepared. A ship presented for a MI should be ready for prompt, sustained combat operations at sea. Ships that do not meet this criterion should not be presented for inspection.

(4) Ensure the safe and expeditious presentation of the ship to INSURV. The Responsible Authority should take the initiative and aggressively carry out the agenda, keeping INSURV informed of progress. Schedule modifications required by casualties or other circumstances should be made with the concurrence of the INSURV Senior Member. INSURV will normally observe the operation of a piece of equipment at the time indicated in the agenda. If a deficient material condition is corrected during the course of the inspection, INSURV will document the deficiency and note its correction.

(5) Designate an INSURV Coordinator to ensure the safe and expeditious execution of the agenda. INSURV recommends assignment of an experienced officer qualified in submarines to serve as the INSURV Coordinator.

(6) Arrange and coordinate required support services.

(7) Ensure that shipyard/shore maintenance facility and ship's force work is limited and coordinated not to interfere or conflict with the inspection.

(8) Arrange for designated ISIC or TYCOM representation at the out-brief (normally the ISIC).

b. INSURV will:

(1) Provide the following messages and documentation to aid preparation for the Inspection:

(a) Inspection notice letter with data enclosures, four to six months in advance, via official mail.

(b) Services message containing specific tasking for the ISIC and submarine, 60 days in advance, via record message traffic.

(c) Visit request message with clearance information for assigned INSURV officer inspectors, 30 days in advance via record message traffic.

(d) Consolidated clearance information message containing date-time groups of all agencies supporting the inspection, seven days in advance via record message traffic.

(2) Comment on the agenda proposed by the Responsible Authority and provide feedback.

(3) Document findings and provide a copy of deficiencies to the Responsible Authority (normally via a data file that can be imported into the ship's 3M system).

(4) Upon completion of the Inspection, brief the ship's Commanding Officer and ISIC on the findings and significant deficiencies identified.

(5) Issue a message report on the results of the Inspection, normally within one week.

(6) Make recommendations to remove a submarine from service if required.

1-4. Liaison with INSURV. To ensure that conduct of the inspection is orderly and efficient, early liaison with INSURV is strongly encouraged. INSURV assigns a Recorder for each inspection who acts as the single point of contact for questions regarding the agenda and administrative support. Inspectors for each individual area are also available to resolve questions within their area. Early problem resolution is essential for a successful inspection. The following is a list of INSURV phone number extensions: [Comm (757) 462-7325; DSN 253-7325; FAX (757) 462-7090].

Office	Extension
Staff Administrative Office	x-3002
Submarine Board	
Senior Member/Damage Control, Habitability,	x-3037

Survivability & Escape	
Electrical Inspector	x-3018
Auxiliaries Inspector	x-3019
Main Propulsion/Reactors Inspector	x-3017
Navigation/Operations, Diver, Interior Communications, Information Systems	x-3015
Weapons/Deck	x-3063
NAVOSH Inspector/Medical, Environmental Protection/Supply	x-3093

Information is also available on the INSURV web site, http://www.public.navy.mil/fltfor/insurv/Pages/default.aspx. Follow the "SUB MI/TRIAL" link. The website contains reference instructions, an INSURV Preparation Checklist, and individual inspection area checklists/guides. The Preparation Checklist should be downloaded and reviewed as soon as an inspection has been scheduled. The individual inspection area checklists/guides describe equipment and evolutions covered in each area.

1-5. Deficiencies. INSURV will evaluate the ship against standards set forth in documents such as the Building Specifications for Submarines, Technical Manuals, Ship System Manuals, Test Loads/Methods Drawings, Joint Fleet Maintenance Manual, and the Preventive Maintenance System. Deficiencies will document where the ship does not meet these standards.

1-6. Schedule.

a. A MI normally lasts four days and generally follows the outline below:

1st Day - BSP or pierside embark / Underway operations.
2nd Day - Underway operations.
3rd Day - Return to port / Ship prepare Open and Inspect items.
4th Day - Open and Inspect / Out-brief.

b. MI events should be scheduled using the sample agenda as a guide, modified to reflect the actual systems/components installed. The ship should be opportunistic in adjusting the inspection schedule, especially while underway. Liberal use of the 1MC will expedite and assist in coordinating events. Obtaining a 24 hr special broadcast for the duration of the underway is instrumental in completing the schedule (SSBN communication requirements permitting).

c. The sample agendas have been developed over time using lessons learned from past inspections. The morning underway on the first day will usually get the submarine back on the third day in time to install the sail race track and VLS platform (if required) to support testing on the fourth day.

d. Guidance Notes (Chapters 3 through 17) provide direction for the inspection of individual areas, including a general list of equipment that may be scheduled to be opened for inspection. As a result of underway observations during the inspection, equipment may be added or deleted from the Open and Inspect List. These additional items will be inspected at a time agreed upon by the ship and inspector.

e. Post-conversion trials will either be conducted as part of the regular post overhaul MI, or will be scheduled separately as a Special Trial (ST), depending on the conversion schedule. If an ST is needed, separate guidance will be provided.

f. During the Large Angles event, caution should be exercised in the conduct of the steep angle test, as these runs will bring the submarine close to its pitch and SOE limits. During conduct of this event, ship speed shall be 12 knots. Both the bow/fairwater and stern planes shall be used to achieve the desired pitch angle and subsequently level the ship. In order to achieve a 25-30 degree angle within the SOE, the following is recommended: Initial depth for the rise extreme angle test be 85 percent of test depth (TD), and action be taken to level the ship when the depth becomes shallower than 50 percent of TD. Initial depth for the dive extreme angle test be 30 percent of TD, and action be taken to level the ship when depth exceeds 60 percent of TD.

g. Conversion submarines with significant structural and/or technology changes may not have all required testing completed (i.e. hydro and ship control trials) by the time the post overhaul MI is conducted. In this case certain MI agenda items (such as Large Angles and Main Engine Bearing RTE checks) may need to be limited. The Program Office for the conversion will determine what limitations, if any, should be imposed. If any MI items are limited, the complete agenda item will be conducted during a subsequent ST. If an ST is not conducted, INSURV will request the TYCOM to have the testing conducted by the ship and results reported to INSURV.

1-7. Administration and Support.

a. Berthing and Office Spaces: INSURV will require dedicated berthing and office space while on board.

(1) For SSNs, this requires exclusive use of the Wardroom and nearby berthing (e.g. 9-man bunk room, not Wardroom Staterooms). For SSBNs, exclusive use of the Crew's Lounge is preferred, with berthing in adjacent missile compartment 9-man bunkrooms.

(2) The Senior Member will berth in the XO's stateroom unless a more senior rider is on board.

(3) The ship should provide a list of bunks available for use by INSURV members. INSURV will then provide specific inspector bunk assignments to the Chief of the Boat.

b. Provide the following to the Senior Member upon INSURV's arrival:

(1) The Commanding Officer's Letter of Concerns outlining material problems worthy of special note and any concerns he may have (JSNs should be included if assigned).

(2) All active CASREPs and updates.

(3) A list of cannibalization or diversion actions, with the circumstances for each.

(4) Record of Departures from Specification.

(5) NAVSEA Pre-Sea Trial Audit (post overhaul/DMP MI only).

(6) Date the Commanding Officer assumed command.
Date of Executive Officer relief.
Date of ship's commissioning.

Material Condition Assessment termination date.
Date of end of NAVSEA-approved service life.
Type, location, and dates of the most recent and the next scheduled CNO availabilities.

(7) List of equipment that should be carried by the ship, but has been "borrowed" to support the trial/inspection.

(8) A copy of the CO's and Engineer's Temporary Standing Orders and applicable supporting correspondence (e.g. MCR, LAR, SUBS, Z0ZZ).

(9) A copy of the most recent 3-M assessment.

(10) Results of the most recent MI (if applicable).

(11) A copy of the most recent Safety Center Survey.

(12) The pre-underway binder (after XO review).

c. The following reports, data, and publications should be available for use:

NOTE: Leave asterisked (*) material in the normal filing location for presentation to inspectors on request. Provide a list of missing items to the recorder.

*(1) All contracts, specifications, a booklet of general plans (including all the latest revisions), essential correspondence files and records, and a corrected copy of the specifications or circular of requirements.

(2) Training Aid Booklet.

*(3) Stability characteristics for the ship with the Equilibrium Polygon and Moment Diagram. Weight and location of temporary lead ballast.

*(4) Rotating machinery baseline structure borne noise survey data.

*(5) COSAL.

*(6) Ship Systems Manual (all volumes).

*(7) NSTMs and Equipment Technical Manuals.

*(8) Test Memoranda (post overhaul/DMP MI only).

d. Provide additional support as follows:

(1) Reserve four designated parking spaces near the ship (seven for Norfolk ships).

(2) All officer members will eat in the Wardroom (working meals, CO welcome to join) on SSNs, and normally all but the senior member will eat in Crew's Mess on SSBNs.

(3) Foul weather clothing if conditions warrant.

(4) A laser printer with driver CD staged in the INSURV working area.

(5) A burn bag for disposal of sensitive information generated during the inspection, staged in the INSURV working area.

(6) Provide a CD file copy of the ship's Current Ship's Maintenance Project (CSMP) Detail Listing by JSN in (.cmp) format per instructions posted on the INSURV website. Department heads should verify the accuracy and completeness of the CSMP, and the file should be generated and saved to CD just prior to INSURV's arrival.

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CHAPTER TWO

GENERAL ADMINISTRATION AND GUIDANCE FOR NEW CONSTRUCTION COMBINED TRIALS (CT) AND GUARANTEE MATERIAL INSPECTIONS (GMI)

2-1. Introduction. This chapter provides background, general guidance, administrative requirements, and instructions to the Responsible Authority for the advance preparation for an INSURV Combined Trials (CT) and Guarantee Material Inspection (GMI).

2-2. Background. INSURV conducts trials and inspections as an independent verification of the material condition of new construction submarines. This includes:

a. Readiness of new construction submarines for acceptance for naval service after presentation for delivery (CT).

b. Verifying the status of all deficiencies identified during the CT and reviewing the performance of contractor responsible equipment during the guarantee period (GMI).

2-3. Responsibility. The Responsible Authority and INSURV have specific responsibilities as follows:

a. The Responsible Authority is the Officer or Commander designated to prepare and present the ship. For the CT, the Responsible Authority is the Supervisor of Shipbuilding (SUPSHIP). For the GMI, the TYCOM is the Responsible Authority; however, most tasks (except scheduling) are usually delegated to the Commanding Officer of the ship. The Responsible Authority will:

(1) Coordinate with the INSURV scheduler to establish a Trial date.

(2) Propose a CT agenda. The agenda is normally drafted by the shipbuilder and reviewed by the Responsible Authority. The Responsible Authority then forwards the proposed agenda to the Program Office and to INSURV for review as well as to the TYCOM for a review of operational considerations. The Program Office will coordinate review by the appropriate NAVSEA offices. The Program Office and the TYCOM forward their comments to INSURV. INSURV adjudicates any differences with the Program Office and/or TYCOM, as appropriate. When all comments have been adjudicated through INSURV, the Program Office directs the shipbuilder to incorporate all agreed upon changes. The shipbuilder forwards the final agenda via the Responsible Authority for approval by INSURV and the TYCOM. The timing of

agenda preparation and review should be such that the shipbuilder receives all comments no later than two weeks prior to the start of the CT (See Tab 1 flow chart). This schedule may need to be modified to allow more time based on the Submarine Board's travel schedule prior to the CT. The agenda should follow the general guidelines of the sample agenda, be modified to reflect the actual systems/components installed, and identify all procedures to be used. All agenda preparation and review parties should be involved from the beginning of the agenda preparation process, starting with the pre-INSURV trials meeting described in paragraph (11) below. (Note: the pre-INSURV trials meeting may not be required for ships after the first-of-class, in which case involvement will be ensured by other means.) The Responsible Authority will ensure the agenda includes the following notes in the General Notes section:

(a) To keep the Supervisor of Shipbuilding's Office, the shipbuilder, and other government organizations informed of the progress and deficiencies on the CT, the senior embarked SUPSHIP representative will ensure a daily message is sent to at least the following organizations: SUPSHIP, PEO Submarines, the appropriate Program Office, COMSUBLANT, NAVSEA 08, and the ship's ISIC.

(b) Each person involved in the CT should be allowed a minimum of six hours of continuous, uninterrupted sleep during any 24 hour period encompassed by the CT.

(c) During INSURV events, only approved class operational instruction and maintenance documentation shall be utilized. Any exceptions to this will be INSURV-approved prior to the CT.

(d) Naval Ship's Technical Manuals (NSTM) are not intended to be a compendium of design and engineering information, nor an all encompassing documentation covering all ramifications of shipboard equipment. If a conflict exists between an NSTM and other related documentation, the document related to a specific equipment/system shall take precedence.

(e) During the Large Angles event, caution should be exercised in the conduct of the steep angle test, as these runs will bring the submarine close to its pitch and SOE limits. During conduct of this event, ship speed shall be 12 knots. Both the bow and stern planes shall be used to achieve the desired pitch angle and subsequently level the ship. In order to achieve a 25-30 degree angle within the SOE, the following is

recommended: Initial depth for the rise extreme angle test be 85 percent of test depth (TD), and action be taken to level the ship when the depth becomes shallower than 50 percent of TD. Initial depth for the dive extreme angle test be 30 percent of TD, and action be taken to level the ship when depth exceeds 60 percent of TD.

(3) Propose a GMI agenda. The proposed agenda should be submitted to INSURV at least one week prior to arrival, and should follow the general guidelines of paragraph 1-6.b below.

(4) Ensure the ship is adequately prepared. This means that a ship presented for acceptance (CT) is complete. Any incomplete items require a waiver by the Chief of Naval Operations [reference (a)]. Ships that do not meet this criterion should not be presented for trial. For GMI, adequate preparation involves ensuring the status of CT deficiencies as listed in the report 4760-1 is as accurate and up to date as possible.

(5) Ensure the safe and expeditious presentation of the ship to INSURV. The Responsible Authority should take the initiative and aggressively carry out the agenda, keeping INSURV informed of progress. Schedule modifications required by casualties or other circumstances should be made with the concurrence of the INSURV Senior Member. INSURV will normally observe the operation of a piece of equipment at the time indicated in the agenda. If a deficient material condition is corrected during the course of the inspection, INSURV will document the deficiency and note its correction.

(6) Designate INSURV Coordinators from SUPSHIP and the ship to ensure the safe and expeditious execution of the schedule. For the ship's coordinator, INSURV recommends assignment of an experienced officer qualified in submarines.

(7) Arrange and coordinate required support services.

(8) Ensure that shipyard/shore maintenance facility and ship's force work is limited and coordinated not to interfere or conflict with the inspection.

(9) Assign representatives of the ship, and the shipyard if appropriate, to accompany the inspectors if so desired.

(10) Provide designated representatives to attend the out-brief (SUPSHIP, NAVSEA Program Manager, Shipbuilder Program Manager, TYCOM Representative, ISIC).

(11) For new ships/classes, set up one or more pre-INSURV trial meetings with all concerned parties (SupShip, NAVSEA, shipbuilder) in order to ensure the INSURV team is familiar with all the new systems/equipment found on new ship/class submarines. These meetings may need to be repeated if INSURV personnel turnover indicates a need and/or follow-on ships have significant differences due to technology changes or insertions.

(12) New construction first-of-class submarines, or follow-on submarines with significant structural and/or technology changes may not have had all required testing completed (i.e. hydro and ship control trials) by the time the CT is conducted. In this case certain CT agenda items (such as Large Angles and Main Engine Bearing RTE checks) may need to be limited. NAVSEA will determine what limitations, if any, need to be imposed. If any CT items are limited, the complete agenda item will be conducted during an underway period added to the GMI.

b. INSURV will:

(1) Provide the following messages and documentation to aid preparation for the Inspection:

(a) Inspection notice letter with data enclosures, four to six months in advance, via official mail.

(b) Services message containing specific tasking for SUPSHIP and the submarine, 60 days in advance, via record message traffic.

(c) Visit request message with clearance information for assigned INSURV officer inspectors, 30 days in advance via record message traffic.

(d) Consolidated clearance information message containing date-time groups of all agencies supporting the inspection, seven days in advance via record message traffic.

(2) Comment on the agenda proposed by the

Responsible Authority and review the comments of NAVSEA and the TYCOM. Incorporate comments unless adjudicated separately.

(3) Document findings and provide a copy of deficiencies to the Responsible Authority and/or the shipbuilder.

(4) Upon completion of the Trial/Inspection, brief the findings and significant deficiencies identified.

(5) Issue a message report on the results of the Trial/Inspection, normally within one week.

(6) Make recommendations regarding the acceptability of new construction submarines for delivery (CT).

2-4. Liaison with INSURV. To ensure that conduct of the trial/inspection is orderly and efficient, early liaison with INSURV is strongly encouraged. INSURV assigns a Recorder for each trial/inspection who acts as the single point of contact for questions regarding the agenda and administrative support. Inspectors for each individual area are also available to resolve questions within their area. Early problem resolution is essential for a successful inspection. The following is a list of INSURV phone number extensions: [Comm (757) 462-7693; DSN 253-7693; FAX (757) 462-7090].

Office	Extension
Staff Administrative Office	x-3002
Submarine Board	
Senior Member/Damage Control, Habitability, Survivability & Escape	x-3037
Electrical Inspector	x-3018
Auxiliaries Inspector	x-3019
Main Propulsion/Reactors Inspector	x-3017
Navigation/Operations, Diver, Interior Communications, Information Systems	x-3015
Weapons/Deck	x-3063
NAVOSH Inspector/Medical, Environmental Protection/Supply	x-3093

Information is also available on the INSURV web site, http://www.public.navy.mil/flfor/insurv/Pages/default.aspx or http://www.fleetforces.navy.smil.mil/insurv/pages/insurv_main.aspx

Follow the "SUB MI/TRIAL" link. The website contains reference instructions, an INSURV Preparation Checklist, and individual inspection area checklists/guides. The Preparation Checklist should be downloaded and reviewed as soon as an inspection has been scheduled. The individual inspection area checklists/guides describe equipment and evolutions covered in each area.

2-5. Deficiencies. INSURV will evaluate the ship against the requirements of the Naval Sea Systems Command Specifications for Building Submarines. Deficiencies will document where the ship does not meet this standard. Where Ships Specifications do not cover a particular area, documents such as Technical Manuals, Ship System Manuals, Test Loads/Methods Drawings, Joint Fleet Maintenance Manual, and the Preventive Maintenance System will be used.

2-6. Schedule.

a. A CT can last up to five days and generally follows the outline below:

1st Day - Pre-underway system checks, if applicable, and underway operations.
2nd Day - Underway operations.
3rd Day - Return to port / Prepare for Open and Inspect.
4th Day - Open and Inspect.
5th Day - Weapons evolutions and out-brief.

Weapons loading, shipping, and handling evolutions may be observed as a different event, prior to the CT, based on schedule considerations. If that happens, the out-brief may occur late in the afternoon of the Open and Inspect day, or early the morning of the day after.

b. A Guarantee Material Inspection (GMI) normally lasts two days and generally follows the outline below:

1st Day - Final review of documentation (ESL, CSMP, CT deficiency status, PDDIs, CASREPs, CO Letter, etc.) to determine final Open and Inspect/inport operation list. Commence Open and Inspect/inport operation.

2nd Day - Open and Inspect and inport equipment operation. Document discrepancies, deficiencies, and screening disagreements. Conduct out-brief.

The GMI generally consists of verifying the status of all deficiencies identified during the CT, reviewing the performance of contractor responsible equipment during the guarantee period, and Inport Operation/Open and Inspect of selected equipment. An underway period may be required if significant testing could not be accomplished during CT.

c. The Responsible Authority should schedule CT events using the sample agenda as a guide, modified to reflect the actual systems/components installed. The ship should be opportunistic in adjusting the trial schedule during the inspection, especially while underway. Liberal use of the 1MC is requested to expedite and coordinate events.

d. The sample agendas have been developed over time using lessons learned from past inspections. For CT, the morning underway on the first day will usually get the submarine back on the third day in time to install the sail race track and VLS platform (if required) to support testing on the fourth day.

2-7. Administration and Support.

a. Berthing and Office Spaces: INSURV will require dedicated berthing and office space while on board.

(1) INSURV will require exclusive use of the Wardroom and nearby berthing (not Wardroom Staterooms).

(2) The Senior Member will berth in the XO's stateroom unless a more senior rider is on board.

(3) The ship should provide a list of bunks available for use by INSURV members. INSURV will then provide specific inspector bunk assignments to the Chief of the Boat.

b. Provide the following to the Senior Member upon INSURV's arrival:

(1) The Prospective Commanding Officer's (CT) or Commanding Officer's (GMI) Letter of Concerns outlining material problems worthy of special note and any concerns he may have (JSNs should be included if assigned).

(2) All active CASREPs and updates (GMI).

(3) A list of cannibalization or diversion actions, with the circumstances for each.

(4) Record of Departures from Specification (GMI).

(5) NAVSEA Pre-Sea Trial Audit (CT).

(6) Certification of contract fulfillment (CT):

"In construction of the USS _____ (SSN___) the contract, plans, specifications and changes thereto have been satisfactorily fulfilled except as noted below." (Summarize by departments; if none, so state.)

(7) List of equipment that should be carried by the ship, but has been "borrowed" to support the trial.

(8) A copy of the CO's and Engineer's Temporary Standing Orders and applicable supporting correspondence (e.g. MCR, LAR, SUBS, ZOZZ).

c. The following reports, data, and publications should be available for use:

NOTE: Leave asterisked (*) material in the normal filing location for presentation to inspectors on request. Provide a list of missing items to the recorder.

*(1) All contracts, specifications, a booklet of general plans (including all the latest revisions), essential correspondence files and records, and a corrected copy of the specifications or circular of requirements.

(2) The Responsible Authority shall prepare a statement of the status of contractor and government furnished repair parts, which shall include a list of critical shortages identified by the ship's Commanding Officer. This list is in addition to, and follows the same format as, the official shortage list. To designate an item "critical" it must be considered essential that the item be on board prior to acceptance or delivery. The recommendations of the Commanding Officer are to be obtained and incorporated in the list of critical shortages (CT).

(3) Training Aid Booklet.

*(4) Stability characteristics for the ship with the Equilibrium Polygon and Moment Diagram. Weight and location of temporary lead ballast. Inclining Experiment data.

*(5) Rotating machinery baseline structure borne noise survey data.

*(6) COSAL.

*(7) Ship Systems Manual (all volumes).

*(8) NAVSHIPS Technical Manual and Equipment Technical Manuals.

*(9) Test Memoranda (CT).

*(10) Copy of Builder's Trials Data Sheets (CT).

d. Provide additional support as follows:

(1) Reserve four (seven for Norfolk Naval Base) designated parking spaces near the ship for GMIs. For CTs, arrangements will be made for transportation to and from the shipyard.

(2) All officer members will eat in the Wardroom (working meals, CO welcome to join).

(3) Foul weather clothing if conditions warrant.

(4) A laser printer with driver CD staged in the INSURV working area.

(5) A burn bag for disposal of sensitive information generated during the inspection, staged in the INSURV working area.

e. For GMI, provide the following:

(1) A CD file copy of the ship's Current Ship's Maintenance Project (CSMP) Detail Listing by JSN in (.cmp) format per instructions posted on the INSURV website. Department heads should verify the accuracy and completeness of the CSMP, and the file should be generated and saved to CD just prior to INSURV's arrival.

(2) Report 4760-1 of ref (d).

(3) Any outstanding Post Delivery Deficiency Items (PDDIs) not captured in the CSMP or Report 4760-1.

f. For CT, provide a CD file copy of the shipyard's list of documented deficiencies. SUPSHIP and the shipyard should work directly with the INSURV recorder before the inspection to ensure the proper format is used. The file should be generated just before INSURV's arrival.

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CHAPTER THREE
AUXILIARIES GUIDANCE NOTES FOR DEPARTMENT HEADS, DIVISION OFFICERS AND SUPERVISORS

3-1. Preparations.

a. On arrival, provide to the Inspector a package tailored to the Auxiliaries (AX) inspection area containing the items below.

(1) Copies of the last seven days of logs for the Below Decks and Auxiliaryman watches and the last seven days of HPAC, HPAD, LPAC, LPAD, and hydraulic plant operating logs.

(2) Copy of PMT data on HP air bank and HPAD dew point measurements taken the weekday before the start of the inspection.

(3) Copies of any applicable CO or Engineer's Temporary Standing Orders and supporting correspondence.

(4) Results from the last performance of URO-16 or URO-19, including "as found" conditions.

(5) Results from the last performance of URO-22, including "as found" conditions.

(6) Results from the last performance of URO-25, including "as found" conditions.

(7) Copy of the OOC Log.

(8) List of equipment for which PMS coverage is missing or inadequate.

(9) Copy of the inspection agenda.

(10) Copy of the CO Letter of Concerns.

(11) Copy of the Fuel, Oil, and Water report.

b. Provide operational documents for the following programs, including requirements of ref (d) Volume IV, Chapter 4, 19, and 21:

(1) Diesel Generator.
(2) Oxygen Generation Systems.

(3) Flexible Hose records.
(4) Navy Oil Analysis Program (NOAP) records.

3-2. Inspection Routine.

a. The inspection is material-oriented and normally consists of two phases: an underway phase and an in-port open and inspect phase. Upon completion of the inspection, the findings will be briefed.

b. PMS Maintenance Record Cards (MRC) are the primary references for the inspection. NAVSEA technical manuals, equipment technical manuals, Type Commander's directives, and the General Overhaul Specifications for Deep Diving SSBN/SSN Submarines are also used. Approved procedures will be followed for all aspects of the inspection.

3-3. Underway Phase. The underway phase checks equipment performance in an operational environment, against design specifications. It usually starts in the morning of the first day of the inspection and is completed by the afternoon of the third day. This phase contains an outbound surfaced transit, a submerged period, a test depth period, and an inbound surfaced transit. The sample inspection agenda provides more detail. Below are some of the tests included in this phase.

a. Surfaced Outbound Assessments.

(1) Ahead Surfaced Steering Assessment. Inspector will provide sequencing instructions.

(2) Snorkel at 100% surfaced load.

(3) Trim and drain pump strainer inspections. Coordinate with E-Division to inspect pump strainer while the motor is tagged out for inspection.

b. Pre-Deep Dive Submerged Assessment.

(1) Submerged diesel operation at 80% load.

(2) TDU interlock and muzzle ball valve leak checks.

(3) Operation of atmosphere control equipment, including candle furnaces and hoppers.

(4) Steep angle equipment operation.

(a) Oxygen generating equipment and CO_2 scrubbers should be operating at maximum capacity.

(b) Equipment normally operating while underway should be in automatic mode to support evolutions.

(5) Automatic depth and course-keeping system tests.

(6) Submerged steering and diving assessment. Inspector will provide sequencing instructions.

c. Deep Dive Submerged Assessments. (Performed at test depth minus 20 feet unless otherwise noted.)

(1) Control surface binding check.

(a) Perform this test at test depth minus 100 ft.

(b) Cycle each set of planes and rudder through one full throw from one hard stop to the other. Ships with fairwater planes will need to open the lower bridge hatch for the Inspector to observe the ram and linkage. Coordinate with the Senior Inspector for lower bridge trunk hatch inspection at the same time.

(2) Trim and drain pump capacity check.

(a) For each pump, pump 5 minutes from an unpressurized tank to sea at the pump's maximum rating. Record the amount of water by change in TLI and by flow totalizer, then provide data to inspector.

(b) For trim purposes, the ship control party may desire to flood in half the amount of water to be pumped before starting, then bring in the rest after completing the test.

(3) Sanitary pump capacity check. Pump from a sanitary tank to sea for ten minutes.

(4) MBT vent valves binding check. Cycle each valve operator in hand and by manually overriding the hydraulic control valve.

(5) Atmosphere control equipment ability to pump overboard.

(6) External hydraulics pump capacity check. This can occur at any time the system is not in use, but scheduling and manning usually provide an opportunity during test depth weapons handling. (SSN 774 class should perform in port before or after the underway.)

d. Post-Deep Dive Submerged Assessments.

(1) Ship list control demonstration (SSBN only).

(2) EMBT blow demonstration. Use URO-22 procedure as a guide. The Type Commander requires an escort vessel if performing blow from deeper than 400 ft.

e. Surfaced Inbound Assessments.

(1) Snorkel on spare governor (Fairbanks-Morse only).

(2) MBT vent valve leak check (before vent covers installed).

3-4. Open and Inspect Phase. The open and inspect phase examines the internal condition of selected equipment. It usually occurs the fourth day of the inspection. The INSURV inspector will provide a list of equipment to be opened for inspection to the ship's INSURV Coordinator. As conditions permit, the ship can open these items for inspection during the underway phase. All equipment to be inspected during this phase should be disassembled and ready for inspection at 0800 on the open and inspect day. It is very important for the ship to be prepared at this time, as this will allow timely completion of the inspection. The ship should aggressively prepare tag-outs and work packages as necessary to support this schedule. Following is a sample list of items that may be inspected. The inspector will modify this list based on observations during the underway phase. Conditional inspections will be required if problems with those items arise during the earlier phases. Hydraulics.

a. Hydraulics.

(1) At least one hydraulic pump discharge and return filter for each major system (CT only).

(2) Control surface in-line servo control valve filters (CT only).

(3) Any filter with out-of-specification differential pressure.

b. Air System Components.

(1) One EAB filter in each compartment.

(2) One MBT blow check valve (open and disassemble, remove stem, poppet and software). Conditional.

(3) One EMBT blow valve (open, disassemble, take stack height readings of ball and seat). Conditional.

(4) HP Air Dehydrator.

(a) Remove tower plugs for desiccant inspection.

(b) Remove pre-filter and after-filter.

(c) Open Cuno filter bowl and remove filter elements.

(5) HP Air Compressor.

(a) Remove one head assembly (4th or 5th stage). Remove piston assembly (2nd/4th or 3rd/5th) and associated connecting rod bearings. Conditional.

(b) Remove suction and discharge valves from associated compressor stages. Conditional.

(c) Open the motor coupling housing. Conditional.

(d) Measure connecting rod bearing clearances and cylinder liner and piston roundness using technical manual procedure. Conditional.

c. Diesel Engine.

(1) Remove inspection covers from upper crankcase, lower crankcase, air box, exhaust header, and vertical drive gears (Fairbanks-Morse); lower crankcase and cam covers (Caterpillar).

(2) Remove blower discharge end access cover and take available blower clearances (Fairbanks-Morse).

(3) Open diesel lube oil and fuel oil filters.

(4) Take lube oil and fuel oil samples.

(5) Measure internal clearances on engine, as directed.

(6) Inventory all diesel special tools.

d. Refrigeration Compressor.

(1) Remove the in-line suction strainer. Conditional.

(2) Remove the dehydrator cartridge. Conditional.

(3) Remove all heads, pistons, and cylinder liners. Conditional.

e. Low Pressure Blower.

(1) Drain and open lube oil sump. Conditional.

(2) Open knife-edge strainer. Conditional.

(3) Remove suction pipe and measure internal clearances. Conditional.

f. Open and disassemble one trim or drain system ball valve (not a bilge suction or firefighting connection) (CT only).

g. Open one variable ballast tank (CT only).

h. Atmosphere Control Equipment.

(1) CO/H_2 Burners.

(a) Remove catalyst bed fill plate.

(b) Remove air filter.

(c) Remove heater cover plate.

(d) Remove lithium carbonate bed access plates.

(2) CO2 Scrubbers.

(a) Remove resin bag trays.

(b) Remove STR-1 (rich MEA strainer), STR-2 (lean MEA strainer), and STR-3 (CO_2 strainer) and place in separate poly bags.

(c) Remove heater cover plate. Conditional.

(d) Remove boiler float valve. Conditional.

(e) Obtain a one-ounce sample of compressor oil.

(f) Remove drive belt cover.

(3) Oxygen Generating Systems.

(a) Remove cubicle/cell area cover plates.

(b) Replace supply water filters; place old filters into separate poly bags for inspection.

(c) Calibrate sensors (if applicable).

i. Lift check one relief valve (CT only).

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CHAPTER FOUR
ELECTRICAL GUIDANCE NOTES FOR DEPARTMENT HEADS, DIVISION OFFICERS, AND SUPERVISORS

4-1. Preparations.

a. On arrival, provide to the Inspector a package tailored to the Electrical (EL) inspection area containing the items below:

(1) Tables 1, 2, 3, and 4 with filled in data. (Tables can be obtained from the Electrical Inspector and the INSURV SIPR site).

a. Electrical Equipment Insulation Resistance Readings. The electrical equipment insulation resistance to ground data sheet, Table 1, is required to be completed within 90 days prior to the start of the inspection. Readings should be taken before and after cleaning and recorded where applicable.

b. Motor Data Information. The Motor Data Information in Table 2 is required to be filled out prior to the inspection.

(2) The Battery Record Book and Degaussing Folder.

(3) Copies of any applicable CO or Engineer's Temporary Standing Orders and supporting correspondence.

(4) Copy of OOC Log.

(5) List of equipment for which PMS coverage is missing or inadequate.

(6) Copy of the inspection agenda.

(7) Copy of the CO Letter of Concerns.

b. The below listed materials will be required to support the inspection:

(1) An operational and calibrated strobe tachometer or photo tachometer.

(2) Brush tension gage.

(3) Gap micrometer or non-metallic gages for measuring brush box to slip ring/commutator clearances.

(4) Safety equipment as required for conducting visual inspections of energized equipment, not to break the plane (e.g. rubber gloves, rubber matting).

(5) Calibrated multi-meter and calibrated ohmmeter.

(6) Thermal imager (if issued).

4-2. Inspection Routine.

a. The inspection is material oriented and normally consists of two phases: the underway phase and the open and inspect phase. Upon completion of the inspection, the findings are briefed. The majority of the electrical inspections are energized, not-to-break-the-plane open and inspects, which are carried out throughout both phases. Few inspections and evolutions affect the entire ship, but most do affect another division, so close coordination is required. Nearly all electrical inspections can be performed during any portion of the MI and every effort should be made to complete the inspections before the open and inspect day. Look for opportunities to conduct things earlier in the inspection rather than later.

b. PMS MRCs are the primary references for equipment inspection. NAVSEA technical manuals, equipment technical manuals, TYCOM's directives, and General Overhaul Specifications for Deep Diving SSBN/SSN Submarines are also used. Approved procedures will be followed for all aspects of the inspection.

c. Switchboard and other inspections are performed while the equipment is energized. Safety of equipment and personnel is of the utmost importance. INSURV will use the ship's safety precautions for all evolutions.

d. It is essential that a proper close-out process be in place for restoring electrical equipment to its fully operational or shutdown condition after it has been inspected. This is especially important in the fast-paced inspection environment. Critical equipment can be significantly damaged by inadvertently leaving commutator brushes uninstalled, then attempting to operate the equipment.

4-3. Underway Phase. The underway phase starts on the first day of the inspection and is usually complete by the afternoon of the third day. During the underway phase equipment is checked to design specifications in an operating environment and by internal inspections. The underway phase is composed of an outbound surfaced transit, a submerged period, a test depth period, and an inbound surfaced transit. Some of the equipment inspections and demonstrations that are conducted during this phase include (as applicable per class):

a. Trim and trim priming pump motors, resistor, rheostat, and controllers. (Coordinate with the Auxiliaries Inspector to perform simultaneously with strainer inspection, if applicable).

b. Drain and drain priming pump motors, resistors, rheostats, and controllers. (Coordinate with the Auxiliaries Inspector to perform simultaneously with strainer inspection, if applicable).

c. 400 Hz motor generators and controllers.

d. Low voltage and high voltage DC switchboards, high voltage (system rated voltage) AC switchboards, and high voltage AC fuse panels (involves inspections in the vicinity of energized gear).

e. Ship service motor generators (except SSN 774 class and some SSBNs). Conduct overspeed check of one SSMG as applicable.

f. All ship service turbine generator (SSTG) collector housings (except for SSN 774 class), cable junction boxes, and shaft grounding brush assemblies.

g. SPM/SPU interlocks and operating gear.

h. Battery well and ICV/IMV/ABMS panel inspection. (Tagout not required.)

i. Laundry equipment inspections and operational checks.

j. EPCP and SSN 21 Auxiliary EPCP. This involves inspections in the vicinity of energized gear.

k. EPM/EPTG controller cabinet and motor. Includes the EPM control cabinet in Maneuvering for SSN 21 Class.

l. CO-H2 Burner controllers.

m. Ultrasonic sink generator.

n. CO2 Scrubber controllers.

o. Various motors and controllers.

p. Submersible pumps and controllers.

q. EPM and SPM/SPU operations. Establish communication between Control, Maneuvering, and the EPM and SPM/SPU control panels.

(1) EPM Operation.

(a) Shift propulsion to the EPM. EPM clutch operation will be observed by the Main Propulsion inspector per the guidance in Chapter 5.

(b) Run the EPM at maximum astern speed for two minutes. (Put no stern way on the ship).

(c) Run the EPM at maximum ahead speed for at least two minutes.

(2) SPM/SPU Operation. The SPM/SPU shall be inspected

by lowering, remote training and running, local power training (if applicable), running for a minimum of 2 minutes while trained to 000 degrees relative and 180 degrees relative, local hand training, and hand and normal hoisting of the SPM/SPU. (As applicable to ship class).

r. Shaft grounding device inspection and shaft voltage checks. Specific shaft turns are required for some ships to perform shaft voltage check procedure.

s. Electrostatic precipitators.

t. Vent fog precipitators.

u. Normal lighting systems.

v. Machinery Noise program.

w. Inspect diesel generator and associated electrical cabinetry. Normally this is performed during deep depth operations. (Tagout required).

x. Shore power joy plug connections. For SSBN 726, SSN 21, and SSN 774 classes, prepare to inspect shore power joy connections prior to underway and/or immediately upon return to port. Other class ships are inspected underway, usually during submerged operation when the Damage Control Inspector is checking the escape trunks.

4-4. Open and Inspect Phase. Most electrical equipment should have been inspected by the end of the underway period. The INSURV Inspector and Ship's Force will establish the list of equipment to be inspected during the open and inspect phase. Equipment should be disassembled for inspection and to allow obtaining critical measurements prior to the Inspector's return at 0800 the day following the underway period. The significance of being completely ready at this time cannot be over emphasized. The following is a list of systems or components which may be inspected during this phase. Equipment may be added or deleted from the list as performance dictates. Wherever possible, items should be brought forward from the open and inspect phase to the underway phase.

a. Complete SSMG over-speed check if not conducted earlier.

b. Inspect DC motors and controllers not inspected underway. (Tagout required).

c. Complete SSTG collector (N/A 774 class) and cable connection box visual inspections.

d. Lube oil pumps and controllers as applicable. (Tagout required):

(1) Propulsion lube oil pumps.

(2) Stripping pumps.

(3) Turbine Generator lube oil pumps.

(4) Control oil pumps.

e. Emergency lighting systems should be energized upon INSURV's arrival for Open and Inspect. The ship should leave emergency lighting energized until notified by INSURV.

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CHAPTER FIVE
MAIN PROPULSION/REACTORS GUIDANCE NOTES FOR DEPARTMENT HEADS, DIVISION OFFICERS AND SUPERVISORS

5-1. Preparations.

a. The ship's Engineer should contact the Main Propulsion Reactors Inspector early in the preparation phase to obtain a copy of the MP/RX Inspection Guide.

b. On arrival, provide the Inspector a package tailored to the Main Propulsion (MP) and Reactor (RX) inspection areas containing the items below:

(1) A copy of the Material and Cleanliness, Preservation and Stowage sections from the most recent Operational Reactor Safeguards Examination (ORSE) Report.

(2) Bearing wear measurements determined within three months of the inspection. Provide a copy of each Bearing Log with depth micrometer readings recorded for thrust and journal bearings as required to be maintained by ref (d) Volume IV, Chapter 19, including the following:

(a) Main Engines.

(b) SSTGs.

(c) Vibration Reducer.

(3) PMT Data determined within three months of the inspection (see the MP/RX Inspection Guide for specific MRCs):

(a) ASW valve leak checks.

(b) ASW pump performance, as applicable.

(c) HP brine pump performance, as applicable.

(d) MSW valve leak checks.

(e) MSW hydraulic operating pressures.

(f) ASW hydraulic operating pressures.

(4) Ship's Force Work Lists for paint/preservation, leaking steam/water valves, Small Valve Maintenance, and lagging repair (if not tracked in the CSMP).

(5) Copies of Liaison Action Requests (LAR) generated since the last inspection by INSURV.

(6) Copies of all Engineer's Temporary Standing Orders (TSOs) and any applicable CO TSOs, and any supporting documentation (Z0ZZ, SUBS, etc.).

(7) M-division and RC-division material history shall be available, but do not have to be included in the inspector's package.

(8) RL-division special surveys and samples.

(9) Most recent AQDR.

(10) 1TMP and 1TME RTE baseline temperature data per SUBMEPP Standardized Test Procedure 435-5075, 435-5585, 9-XTS-504, or 43711-6-216 as applicable.

(11) Propulsion Turbine nozzle clearance measurements taken within three months of the inspection. See Main Propulsion Turbine Technical Manual (NAVSEA S9231-AH-MMA-010 for non-Mod 25 688-class or NAVSEA 0941-LP-054-2010 for SSBN), Section 2-14 and Figure 6-34 for procedure.

(12) Results from the most recent performance of URO MRC 025, including "as found" conditions.

(13) Average daily propulsion plant make-up water usage over the last two week continuous steaming period and total weekly water made over that same period, tabulated by destination (i.e. steam plant/RFT, potable water, DI).

(14) Copy of the OOC Log.

(15) List of equipment for which PMS coverage is missing or inadequate.

(16) Copy of the CO Letter of Concerns.

5-2. Inspection Routine.

a. The inspection is material oriented and normally consists of two phases: underway phase, and open and inspect phase. Upon completion of the inspection, the findings are briefed.

b. PMS MRCs are the primary references for equipment inspection. NAVSEA technical manuals, equipment technical manuals, TYCOM's directives, Naval Ships Technical Manuals (NSTMs), and General Overhaul Specifications for Deep Diving SSBN/SSN Submarines are also used. Approved procedures will be followed for all aspects of the inspection.

c. The ship's Engineer Officer should refer to the MP/RX Inspection Guide for more detailed information about the inspection routine.

5-3. Underway Phase. During the underway phase equipment is checked to design specifications in an operating environment. The underway phase starts on the first day and is normally complete by the morning of the third day. The underway phase is comprised of an outbound surfaced transit, a submerged period, a deep dive testing period, and an inbound surfaced transit.

a. Surfaced Outbound Assessments. The following tests will be performed during the outbound transit:

(1) Throttle setpoint check. The MP Inspector observes a Main Engine warm-up evolution to check throttle cracking points. This test may also be done pierside or submerged.

(2) Main Condenser Vacuum Drop test. Perform IAW NSTM 254-2.6.20.1 or MRC. This requires temporarily limiting propulsion capability while the electric plant and main engines are lined up for testing. If hatches are shut, this test should not be done during any evolution that changes the pressure in the ship (e.g. snorkeling, ventilating, water slugs, hovering). This test may also be performed pierside or submerged.

(3) SSTG Overspeed Trip test. Perform IAW MRC. This test requires CO permission for work near energized gear, and the Engineer should supervise. SSBNs are required to perform this test pierside.

(4) Ahead Propulsion checks. The MP Inspector will observe propulsion plant operation while the ship transits at normal maximum surfaced speed. These checks will be concurrent

with ahead steering checks and water slugs. The watch team should set initial conditions for the astern reversal test during this period.

(5) Astern Reversal test. See NSTM 231-3.10.3.5 and SUBMEPP Standardized Test Procedure 435-5075, 435-5585, 9-XTS-504, or 43711-6-216 as applicable. The ship should be operated at maximum allowed surfaced speed. Reactor coolant pumps and main feed pumps will be operated as required to support 100% power prior to ordering the bell to commence testing and PLO cooler outlet temperature should be between 126oF and 130oF before commencing. Initiate the astern reversal from the normal maximum ahead surfaced propulsion limit by ordering "All Back Emergency". Answer the maximum allowed astern RPM, within propulsion limits, for as long as allowed by the S&EPM, and record data prior to reducing the bell. Shaft RPM should be lowered to the RPM specified for "All Back Full" within the time required by S&EPM Operating Instructions. Run at "All Back Full" for about ten minutes. During this period, the AX Inspector will test the steering gear. This test is normally followed by the ahead reversal demonstration.

(6) Ahead Reversal Demonstration. When the astern steering gear checks are complete, the ship will answer All Stop, then a normal maximum ahead bell as above.

(7) EPM Operational Check. This op check is coordinated with the EL Inspector. For SSN 21 Class, SSN 774 Class, and MOD 25 SSN 688 Class, engage the EPM clutch at maximum differential speed and operate the EPM as required by the EL Inspector. For SSBNs/SSGNs and non-MOD 25 SSN 688 Class, the clutch control oil accumulator should be charged by hand, then the clutch should be engaged by the normal method at maximum differential RPM. When EPM operation is complete, recharge the accumulator using the motor charging pump before disengaging the clutch.

b. Submerged Assessments.

(1) Vibration Reducer Operational Check. The ship changes depth at 10 knots from 150/155/160 feet to 50% test depth and back to 150/155/160 feet using a 7 degree angle.

(2) Main Engine Overspeed Limiter test. Perform IAW MRC. The Engineer is required to observe. Some SSN 688 Class submarines may perform this test while surfaced.

(3) Flank Speed run. See SUBMEPP Standardized Test Procedure 435-5075, 435-5585, 9-XTS-504, or 43711-6-216 as applicable. The ship will run at flank speed for one hour with PLO and TGLO cooler outlet temperatures maintained at 126-130F. All 1TMP and 1TME bearing temperatures shall be recorded at 10-minute intervals during the test. Machinery Division should also conduct a Main Condenser Performance Test per MRC and RPFW Flow Degradation check per RPPMS if applicable. This test is followed immediately by high speed turns.

(4) High Speed turns. See SUBMEPP Standardized Test Procedure 435-5075, 435-5585, 9-XTS-504, or 43711-6-216 as applicable. While maintaining PLO cooler outlet temperature at 126-130F, reduce speed to Ahead Full. With speed stable, the ship will execute a turn to the right with maximum safe rudder angle. (Experience has shown that SSN 688 Class without dihedrals can use 20 degrees rudder up to flank speed, SSN 688 with dihedrals and SSN 21/22 can use at least full rudder, and SSBN/SSGN, SSN 23, and SSN 774 class can use hard rudder. Ship's force and the MP Inspector will monitor main engine journal bearings during the turn. When temperatures have peaked, the ship will come out of the turn and allow speed to stabilize. The ship will then turn to the left in the same manner. After each set, the ship will raise speed by 5 shaft RPM, and repeat the process until flank speed is reached. 1TMP alarms may occur during the test. This test may be abbreviated for ships that have data available from recent performance of the procedure; discuss with the MP Inspector. For ships with fixed RTE alarm setpoints, this test will consist of several turns between Full and Flank to check bearing response.

(5) Large Angle test. See SUBMEPP Standardized Test Procedure 435-5075, 435-5585, 9-XTS-504, or 43711-6-216 as applicable. The ship conducts two sets of depth changes using 25-30 degree angles. The electric plant will be in a NFPLU with Reactor Coolant pumps in maximum speed for both sets of angles. This test verifies the performance of SSTG thrust bearings. The air conditioning and distilling plants and other propulsion plant systems are also observed during the evolution. After the test is complete, ship's force will shift, clean, and inspect all lube oil strainers and present any material to the MP Inspector.

(6) RCP operation. Each RCP should be operated in all modes for the MP/RX Inspector's observation.

c. Deep Dive Assessments. All sea-connected systems in the engine room will be inspected while the ship is at test depth minus 20 feet. Additionally, ship's force will conduct the following tests:

(1) Shaft Seal Leak Rate Measurement. Shift shaft seals and measure the leak rate IAW the MRC.

(2) Distilling System Performance Test. During the entire period of the inspection, each distilling unit should make good water and fill a tank for at least four hours. The level of the tank being filled should be recorded in the distilling unit log remarks every hour on the hour during the MI in order to perform a capacity check, using the Performance Test MRC for guidance in maintaining operating parameters. Additionally, the distilling units should be operated during the large angles demonstration, propulsion demonstrations, and the test depth period as exceptions to the Rig for Deep Submergence.

d. Surfaced Inbound Assessments.

(1) Sea Chest Blow demonstration/inspection. The MP Inspector will inspect all sea chest blow flex hoses. Ship's force will blow a sea chest from each available air source.

5-4. Open and Inspect Phase. The INSURV Inspector and Ship's Force will establish the list of equipment to be inspected during the open and inspect phase. Equipment should be disassembled for inspection and to allow obtaining critical measurements prior to the Inspector's return at 0800 following the underway period. The significance of being completely ready at this time cannot be overemphasized. Inspection items should be front loaded as much as possible to complete all inspections in a timely manner. The following is a list of systems or components that will be inspected during this phase. Equipment will be added or deleted from the list based on at-sea evaluation.

a. The Reactor Compartment. Ship's force provide a knowledgeable escort. Ensure MP/RX Inspector's exposure record card is staged at the control point.

b. TGLO standby feature checks IAW S&EPM (including coastdown pump operation).

c. PLO standby feature checks IAW S&EPM.

d. Reduction gear inspection and spray nozzle operation IAW MRC (based on at-sea evaluation).

e. MS-3 and MS-4 drift check and overpressure trip check IAW MRCs.

f. Seawater side of a condenser or seawater heat exchanger (based on at-sea evaluation).

g. Inspect shaft seal filters IAW MRC. Change out filters after return to port and present to MP Inspector. The shaft seals must be returned to service for the reduction gear inspection.

h. Inspect impulse steam traps IAW MRC if applicable.

i. Operationally leak test the inflatable shaft seal IAW NSTM Chapter 244 and SSM, if applicable. Perform upon return to port and return shaft seals to service for the reduction gear inspection.

j. Inspect condensate strainers.

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CHAPTER SIX
OPERATIONS GUIDANCE NOTES FOR DEPARTMENT HEADS, DIVISION OFFICERS AND SUPERVISORS

6-1. Preparations.

a. On arrival, provide the Inspector a package tailored to the Operations (OP) inspection area containing the items below:

(1) Communication plan.

(2) ESM Search Plan.

(3) A list of commercial equipment installed, with copies of authorizing SHIPALT/A&I instructions attached.

(4) Copies of any applicable CO or Engineer's Temporary Standing Orders with supporting documentation.

(5) Copy of the OOC Log.

(6) List of equipment for which PMS coverage is missing or inadequate.

(7) Copy of the inspection agenda.

(8) Copy of the CO Letter of Concerns.

b. The below listed documents will be reviewed during the course of the inspection:

(1) EMI/RFI surveys IAW JFMM VOL 6, para 4.2.1.

(2) SSN/SSGN: Most recent SRT of RDF equipment IAW MRC 4721/R54 R-4S.

(3) SSN: Most recent Type-18, RF Gain Test data IAW MRC 4251/R09 R-6.

(4) SSN: Most recent Type-18, Yoke Bearing and Bumper Height Verification data IAW MRC 4251/R09 U-2.

(5) SSN/SSBN/SSGN: Most recent Type 8, EW RF Test data IAW MRC 4251/001 R12.

(6) Any other Operations Department electronic groom reports or surveys.

(7) Most recent mast and antenna inspection report provided by local antenna rep.

(8) Pictorial of mast and antenna arrangement from SSM.

(9) Review electronic equipment PMS requirements and verify all required test equipment is onboard and in working order.

c. Evolutions requiring special coordination include:

(1) Demonstration of ship's ability to communicate via all radio circuits using all possible equipment line-ups.

(2) Weapons data link demonstrations, both HF and UHF. (Will require coordination with the controlling ISIC or TYCOM as appropriate.)

(3) RDF, ESM, IFF, and communication systems evaluation should be accomplished with the cognizant Shipboard Electronics System Evaluation Facility (SESEF) or Fleet Technical Support Center, where available, and will require scheduling by the ship.

(4) Have crypto loaded for all communication circuits prior to INSURV's arrival.

(5) Liaison with SESEF in advance of the inspection for additional Comms/IFF demonstrations as necessary. For New London units, comms testing will be accomplished with other units of opportunity and IFF testing will be accomplished with the test gun. SESEF information is provided as below.

NOTE: /NUWCDETSD.NUWCKPT.NAVY.SMIL.MIL/ is a SIPRNET site listing all SESEF sites worldwide. Look under "Shipboard Technical Information Manual" (STIM).

SESEF	TELEPHONE	UHF GUARD	HF GUARD	HOURS
Norfolk "SESEF"	(757)425-1094 RMC(757)443-3872	274.8 MHz clear	7535 kHz (USB windows)	0700-1600

San Diego "Reliable Partner"	(619)553-3184 DSN 553-3184	236.2 MHz 264.2 MHz clear	264.2 MHz 5742 kHz (USB windows)	0800-1600
Puget Sound "Magic Carpet Sierra"	(360)457-5658 (Site) DSN 744-7024(SY) (206)396-7024(SY)	308.5 MHz clear	3236 kHz (USB windows)	Must schedule
Hawaii "Patrol Leader Bravo"	(808)682-1510	277.0 MHz clear		Must schedule

(6) Coordinate with squadron in advance of the inspection to have sail staging installed as soon as possible (no later than the night of return to port) upon the ship's return to port.

(7) The sail inspection will commence promptly at 0800 on the Open and Inspect day.

6-2. Inspection Routine.

a. The inspection is material oriented and normally consists of two phases: the underway phase, and open and inspect phase. Upon completion of the inspection, the findings are briefed.

b. PMS MRCs are the primary references for equipment inspection. Ship Systems Manuals, NAVSEA Building Specifications, NAVSEA technical manuals, equipment technical manuals, TYCOM's directives and General Overhaul Specifications for Deep Diving SSBN/SSN Submarines are also used. Approved procedures will be followed for all aspects of the inspection.

6-3. Underway Phase. During the underway phase equipment is checked to design specifications in an operating environment. The underway phase usually starts the afternoon of the first day and is complete by the morning of the third day. The underway phase is comprised of an outbound surfaced transit, a submerged period, a test depth period, and an inbound surfaced transit. Some of the demonstrations conducted during this phase include testing portable communications equipment including all bridge-to-bridge radio sets.

a. Surfaced Outbound Transit

(1) Communication checks.

(2) Weapons data links in all modes.

(3) ESM capabilities including periscope electronics.

(4) RDF/DF systems using known beacons or targets of opportunity.

(5) IFF operational check.

(6) Mission Critical Camera operation (774).

b. Pre-Deep Dive Assessments

(1) Conduct floating wire demonstration to include HF and VLF signal reception.

(2) Towed buoy antenna demonstrations to include VLF, HF, and navigation signal reception. (SSBN only).

c. Deep Dive Assessments

(1) PMS checks on emergency communications equipment.

(2) Continue ESM checks.

d. Post-Deep Dive Assessments

(1) Post submergence antenna resistance measurements.

(2) At periscope depth (PD) conduct mast timing.

e. Surfaced Inbound Transit.

(1) Continue any unsuccessful communication circuit demonstrations.

(2) Test ship's whistle.

6-3. Open and Inspect Phase. The INSURV Inspector will establish the list of equipment to be inspected during the open and inspect phase. Equipment should be disassembled for inspection and to allow obtaining critical measurements prior to the Inspector's return at 0800 following the underway period. The significance of being completely ready at this time cannot

be over emphasized. The following is a list of systems or components which may be inspected during this phase. Equipment may be added or deleted from the list as performance dictates.

a. AN/BRA-6 Tuning Group inspection.

b. Conduct remaining electronics and communications equipment PMS checks.

c. Towed buoy antenna area visual inspection (SSBN).

d. IFF. Coordinate with the local regional maintenance representative to ensure the IFF testing gun is available for the Open and Inspect day. Testing IFF with the test gun is required for New London units, other units should have the gun available in case underway IFF testing revealed problems.

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CHAPTER SEVEN
NAVIGATION AND INTERIOR COMMUNICATIONS GUIDANCE NOTES FOR DEPARTMENT HEADS, DIVISION OFFICERS AND SUPERVISORS

7-1. Preparations.

a. On arrival, provide the Inspector a package tailored to the Navigation (NV) inspection area containing the items below:

(1) Certification and measurements of arc of visibility of navigational lights IAW OPORD 2000 and NSTM 422

(2) U.S. Certificate of Admeasurement and Suez Canal Tonnage Certificate if built to specifications IAW OPORD 2000.

(3) COSAL allowance pages for all portable navigation equipment and weather monitoring equipment (e.g., portable foghorn, binoculars, bearing circles, barometers, anemometers, sextants). Use highlighters to mark applicable sections or columns for your ship.

(4) Provide a list of commercial equipment installed, and attach copies of the authorizing SHIPALT/A&I instructions.

(5) Copies of any applicable CO or Engineer's Temporary Standing Orders with supporting documentation.

(6) Have all portable navigation equipment and weather monitoring equipment available on day one.

(7) Provide a list of any missing or broken equipment. Use COSAL for allowance requirements.

(8) Copy of the OOC Log.

(9) List of equipment for which PMS coverage is missing or inadequate.

(10) Copy of the inspection agenda.

(11) Copy of the CO Letter of Concerns.

7-2. Inspection Routine.

a. The inspection is material oriented and normally consists of two phases: The underway phase and the open and inspect phase. Upon completion of the inspection, the findings are briefed.

b. PMS MRCs are the primary references for equipment inspection. Ship Systems Manuals, NAVSEA Building Specifications, NAVSEA technical manuals, equipment technical manuals, TYCOM's directives, General Overhaul Specifications for Deep Diving SSBN/SSN Submarines are also used. Approved procedures will be followed for all aspects of the inspection.

7-3. Underway Phase. During the underway phase equipment is compared to design specifications in an operating environment. The underway phase starts the first day and is complete by the afternoon of the third day. The underway phase is comprised of an outbound surfaced transit, a submerged period, a test depth period, a second submerged period (if required) and an inbound surfaced transit. Equipment material condition assessments conducted during this phase include: (all material assessments are conducted IAW PMS, SSM'S, and equipment technical manuals).

a. Surfaced Outbound Transit

(1) Piloting (Periscope, radar, GPS fix).

(2) Monitor the secure fathometer (SSBN).

(3) Monitor the underwater log.

(4) Radar equipment including video displays and portable radar. Bearing comparison checks.

(5) Inertial navigation equipment (ESGN, RLGN, etc.).

(6) Electronic NAVAIDS equipment (GPS, Voyage Manager System, and Trident secure fathometer).

(7) Conventional NAVAIDS equipment (Sextants, signal lamps, binoculars, etc.).

(8) Engine order telegraph.

(9) Gyrocompass, bearing repeaters and synchronous amplifier comparisons.

(10) Periscope/Photonics optics and camera systems.

b. Pre-Deep Dive Assessments

(1) Monitor inertial navigation equipment.

(2) Monitor navigational equipment.

(3) Gyrocompass and repeaters.

(4) MC systems and alarms.

(5) Metering and indication system.

(6) 31MC and associated batteries.

(7) Depth detector.

(8) Automatic maneuvering system/depth and course keeping (as applicable, in conjunction with Auxiliaries Inspector).

(9) Minimum Electronics Mode (MEM) for SSN 774 Class.

c. Deep Dive Assessments

(1) Bridge Suitcases.

(2) Conventional NAVAIDS.

(3) 2JV, 4MC, Sound Power Phone circuits.

(4) Monitor inertial navigation equipment.

(5) Monitor navigational equipment.

(6) Ship's entertainment systems.

d. Post-Deep Dive Assessments

(1) Monitor inertial navigation equipment.

(2) Monitor navigational equipment.

(3) Tank level indicating system.

(4) Central atmosphere monitoring system (CAMS).

(5) Bilge and flood alarms.

(6) Hovering or depth control systems (in conjunction with Auxiliaries Inspector).

e. Surfaced Inbound Transit

(1) Monitor inertial navigation equipment.

(2) Monitor navigational equipment.

(3) Interior communication switchboards.

7-4. Open and Inspect Phase. The INSURV inspector will establish the list of equipment to be inspected during the open and inspect phase. Tagouts and Work Authorization Forms should be complete and the Sail Racetrack should be installed upon return to port. Equipment should be disassembled for inspection and to allow obtaining critical measurements prior to the INSURV inspector's return at 0800 following the underway period. The significance of being completely ready at this time cannot be over emphasized. The following is a list of systems or components that may be inspected during this phase. Equipment may be added or deleted from the list as performance dictates.

a. Sail interior, masts and mast wells:

(1) Install sail race track (must be done on day of return to port, NOT during the Open and Inspect day).

(2) Raise and clamp all masts and antennas in the fully raised position. Do not clamp periscope barrels. The periscopes should be tagged on the bars to allow for mast well inspection. Have the Nav ID mast fully raised prior to sail tagout (if applicable).

(3) Remove port side lower sail access plates for access to all sail interior areas (SSN 688 Class only). Access plate removal for all other classes will be determined by the Inspector and Ship's Force.

b. Bridge and bridge trunk.

c. Sail exterior and fairwater planes.

d. Periscope and mast wells.

e. Interior Communications Area.

(1) Visually inspect all sections of the Ballast Control Panel (BCP) and Ship Control Panel (SCP). Permission is required for visual inspection of energized equipment, not to break the plane.

(2) Energize all navigation lights on primary and alternate filaments.

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CHAPTER EIGHT
WEAPONS AND DECK GUIDANCE NOTES FOR DEPARTMENT HEADS, DIVISION OFFICERS AND SUPERVISORS

8-1. Preparations.

a. On arrival, provide the Inspector a package tailored to the Weapons/Deck (WP/DK) inspection area containing the items below:

(1) Weapons:

(a) A copy of the most recent Combat System Readiness Review (CSRR), Total Ship's Readiness Assessment (TSRA) or equivalent if conducted within six months.

(b) Torpedo Tube instrumented water slug data.

(c) Results from most recent performance of URO-25 (conducted within 30 days of the inspection if possible).

(d) Results from 3-Inch/Internal Launcher interlock checks, MRC 5953/912 A-6 or A-7, conducted within 30 days of the inspection. Include "as found" conditions. Recommend obtaining the assistance of the local Regional Maintenance Center or Submarine Technical Support Center when conducting interlock checks.

(2) Deck:

(a) AELs for man overboard equipment, helicopter transfer equipment, and force protection equipment.

(b) AELs for MK 48/ADCAP, torpedo tube, Tomahawk, and mine (as applicable) special tools.

(3) Copies of any applicable CO or Engineer's Temporary Standing Orders with supporting documentation.

(4) Copy of the OOC Log.

(5) List of equipment for which PMS coverage is missing or inadequate.

(6) Copy of the inspection agenda.

(7) Copy of the CO Letter of Concerns.

b. The documents listed below will be reviewed during the course of the inspection. They should remain in their normal stowage location until requested by the Inspector:

(1) Weapons:

(a) Ship's Index of Technical Publications (ITP) or Publication Allowance List (PAL).

(b) Weight Handling Equipment Test Records and current recall list for ship's portable weight handling gear and weapons handling/shipping equipment. (TLMD).

(c) Sonar Logistics Audit Report indicating status of corrective action (CT, post overhaul/DMP MI only).

(d) Fire Control Logistics Audit Report indicating status of corrective action (CT, post overhaul/DMP MI only).

(e) Weapons system certification documentation (CT only).

(f) The latest NAVSEA Acoustic Trials Data Report (or TOMA report or quicklook message as applicable), and the ship's Platform Noise Survey binder or program.

(g) Divisional pre-underways.

(2) Deck:

(a) Most recent Docking Report and Hull Board Survey Report.

(b) Current Salvage Inspection Report and report of corrective action.

8-2. Inspection Routine.

a. In order of preference, a TOTEM, Tomahawk shape, MK-48 shape, or MK-48 warshot will be used for torpedo tube loading demonstrations on the surface and at test depth.

b. The following preparations for torpedo room evolutions are recommended:

(1) All torpedo tubes should be empty at the commencement of the trial/inspection to facilitate internal inspections of the tubes.

(2) Torpedo tube instrumented water slugs will normally be completed before the inspection. The data should be available on board during the inspection.

(3) The number of weapons and temporary berthing/ stowage racks carried in the torpedo room should be minimized to allow efficient accomplishment of the test depth events. Load line alignment will be checked on the surface and at test depth. A TOTEM or Tomahawk loaded for launch is preferred to conduct this check, but a MK-48 shape or warshot will be used if necessary.

(4) All torpedo room evolutions must be well planned, especially the test depth items. It is helpful to remember that some 3-Inch Launcher operations will also be conducted at test depth.

c. The inspection is focused on material condition.

d. PMS MRCs, Ship Systems Manuals (SSM), OD44979 procedures and technical manuals are the primary references for equipment inspection. TYCOM's directives, General Overhaul Specifications for Deep Diving SSBN/SSN Submarines and General Specifications for U.S. Naval Ships are also used. Approved procedures will be followed for all aspects of the inspection.

e. Some inspections may take place during the open and inspect day. An example is VLS mechanical checks. Any equipment deficiencies that can not be processed electronically (for inclusion into the final report and upload into the ship's CSMP) due to time constraints will be passed directly to the work center supervisor.

f. The material condition of the Fire Control, Missile Fire Control (SSBN), and Sonar systems is determined largely through the accomplishment of PMS (and WP/SMP for SSBN/SSGN) items conducted during the underway phase of the inspection on a not-to-interfere basis with other ship's evolutions. The required PMS items to be accomplished are listed in the Inspection Guides for these systems, which are available on the INSURV web site. The division LPO should coordinate the schedule for conducting these PMS items with the Inspector and

appropriate assistants as soon as possible during the inspection to ensure timely completion.

8-3. Underway Phase.

a. Surfaced Outbound Assessments

(1) Some assessments are typically commenced during the surface transit, but may be performed during the submerged part of the inspection as well. Surface assessment items listed below should not cause a delay in submerging the ship if they are not yet completed when the ship is ready to dive. These items can be completed during the remainder of the underway phase or upon return to port if required. Some of the demonstrations that are conducted during this phase include:

(a) Weapons data converter diagnostics.

(b) Fathometer operational checks.

(2) Conduct Active SONAR operational checks (all systems, all modes), observed by the Sonar Assistant, when conditions allow (i.e. no longer in restricted waters). All applicable reporting requirements should be observed for use of active sonar as part of the INSURV inspection.

(3) Conduct weapons handling system interlock checks per MRC and OD44979, observed by the Torpedo Assistant.

(4) Load and backhaul a weapon or shape into each torpedo tube per OD44979 to check load line alignment while on the surface.

(5) Conduct the Pyro/Ammo locker flood test per MRC.

(6) Shoot torpedo tube waterslugs per OD44979 from all tubes while the ship maintains maximum speed ahead on the surface.

(7) Conduct an inspection of all small arms lockers per MRC.

(8) Conduct an inspection of all lifesaving gear to include the following:

(a) Prior-to-use inspections of 10 of each type of life preserver carried on board per the MRC.

(b) Inventory of the Man Overboard Bag per MRC, AEL and SSM.

(c) Inventory of the Helicopter Transfer Kit bag per MRC, AEL and SSM.

b. Submerged Assessments. During the submerged phase, equipment is checked to design specifications in an operating environment.

(1) Pre Deep Dive.

(a) Prior to the first mid-watch, the Fat Line Towed Array will be deployed per the SSM at the minimum allowed ship speed and maximum practical ship depth to the scope required to conduct LOS noise cuts.

(b) During the Mid-Watch, the ship will perform Hull Vibration Monitoring Surveys and LOS noise cuts for Port and Starboard aspects per MRC. The standard machinery line-up should be maintained during this process and any exceptions should be identified to the inspector and Radiated Noise or Sonar assistant prior to conducting the events. The ship will be expected to convert hull vibration survey measurements to RNE data while underway using onboard equipment and software. Lack of this capability is usually considered to be a significant deficiency.

(c) Retrieve the Fat Line Towed Array at maximum allowed ship speed and maximum practical ship depth per the SSM late in the mid-watch and load an SSXBT and a combination pyrotechnic per OD44979 to be ready for launch at periscope depth.

(d) While at periscope depth, launch an SSXBT per OD44979 from the 3-inch launcher from the local control panel. The intent of this operational check is to prove the equipment internal to the ship works and to verify the electrical paths required to get a successful trace.

(e) While at periscope depth, launch a combination pyrotechnic per OD44979 from the 3-inch launcher from the local control panel. The intent of this operational check is to prove the equipment internal to the ship works and to prove the ship's ability to successfully launch a pyrotechnic.

(f) The inspector and assistants will focus on stowage during large angles.

(2) Deep Dive.

(a) Torpedo Room Demonstrations: Experience has shown that Torpedo Room demonstrations usually become the limiting area for the ship to proceed shallow. Preparations for Torpedo Room events at test depth should begin when large angles are complete. Deep dive events can commence once the ship is at TD minus 20 feet. Deep dive events include:

(1) Shoot a water slug from each tube using the hand firing keys per MRC.

(2) Equalize impulse tank and inspect all torpedo tubes for slide valve and stop bolt housing leakage.

(3) Load and backhaul a weapon or shape from each tube per OD44979, preferably a TOTEM or Tomahawk loaded for launch.

(4) Demonstrate that weapons or shapes can be indexed per OD44979 through each stowage position.

(b) 3-Inch Launcher Operations:

(1) Shoot one water slug from each launcher per OD44979, firing from the control room/attack center (remote pneumatic).

(2) Hand ram one water slug from the secondary launcher per OD44979.

(c) Thin Line Towed Array deployment and retrieval:

(1) Deploy the thin line towed array at minimum speed and maximum practical depth permitted by SOE and SSM to short stay. Operationally check the thin line towed array. Retrieve the array at maximum speed and maximum practical depth permitted by SOE and SSM.

(d) Flood control testing. Test Torpedo Room Flood Control System valves IAW the class Standardized Test Procedure. (SSN 688: 083-5238. SSBN/SSGN: 9-081-505. SSN 21: 09400-6-201. SSN 774: 09400-6-7238)

c. Post Deep Dive.

(1) Check propeller cavitation at 200 ft per reference (d) Vol VI, Ch 23 using noise monitoring hydrophones. Compare the cavitation inception speed measured to ship's cavitation curve.

(2) While the ship is operating at flank speed submerged, shoot torpedo tube waterslugs per OD44979 from all tubes from the control panel in the torpedo room.

(3) Conduct VLS testing on all VLS tubes with AURES loaded. VLS testing on VLS tubes not loaded with AURES will be conducted during the in-port phase.

(4) (SSGN Only) Conduct Battle Readiness Test and missile launch exercise. Details will be coordinated with the Weapons Inspector.

d. Surfaced, inbound transit assessments

(1) While on the surfaced transit inbound, conduct anchor operations per SSM:

(a) The ship shall be lying to on the surface in (typically) 40-50 fathoms of water.

(b) The anchor will be made ready for letting go, with snubbing scope set at 30 fathoms. If anchoring in less than 30 fathoms, set snubbing scope at 10 fathoms less than water depth.

(c) Release the anchor per SSM.

(d) Engage the band brake and demonstrate its ability to hold.

(e) Engage, then disengage, the chain locking device.

(f) At this point the clutch may or may not be engaged depending on whether it was engaged to line up the chain locking device. If the clutch is not engaged, then engage it.

(g) Bring in the anchor with the windlass. Demonstrate satisfactory retrieval rate.

(h) If the anchor did not free fall on the first attempt, it will be necessary to walk out approximately 1 fathom of chain per the SSM and make a second attempt at free fall. If the anchor does not free fall at this point, it is retrieved and the anchor should be secured.

(2) Topside:

(a) The Inspector will go topside concurrently with the topside line handlers.

(b) Topside demonstrations include rolling cleats, raising/checking/lowering the capstan, walking the safety track with a deck traveler and lanyard, and visually checking topside cavities (e.g., frame 32 for 688 class SSNs). If any demonstrations cannot be conducted due to operations (bringing tugs alongside) or weather, they will be conducted immediately after mooring or during the open and inspect phase.

(c) (SSBN only) Conduct Battle Readiness Test (BRT) as soon as possible during the inbound transit. This may be upon mooring.

8-4. Open and Inspect Phase. INSURV will provide the list of equipment to be inspected during the Open and Inspect phase to the ship's INSURV Coordinator during the underway phase. Equipment included in the list should be readied for inspection before the Inspector's return the morning following the underway phase, usually at 0800. The significance of being completely ready at this time cannot be over emphasized. The following is a list of systems or components which may be inspected during this phase. Equipment may be added or deleted from the list as directed by the Weapons Inspector.

a. VLS Evolutions. The timeline for evolutions will depend on several factors such as which tubes contain AURES. Close liaison between ship's force and the INSURV inspectors is required to ensure this system is checked thoroughly and efficiently.

(1) A VLS platform, if used, must be installed immediately upon return to port, NOT on the morning of the Open and Inspect day. Following installation of the platform, the ship should conduct checks on tubes with AURES installed.

(2) Electrical checks consist of "green board and shooting" the tube in several modes, plus repeating the process

with the SWIM each side (if applicable), then conducting fault troubleshooting as time allows.

(3) During the Open and Inspect Day, VLS electrical checks should start at 0700, and complete no later than 1100.

(4) Mechanical checks include bathtub area visual inspections, hatch cycling, locking mechanism checks, and selected valve internal inspections. Some of this is conducted on the day of return to port and some is conducted on the Open and Inspect day after completion of electrical checks.

b. Weapons Loading Equipment. This is normally inspected during the underway phase on a not-to-interfere basis with other demonstrations. If further inspection is deemed necessary it will be conducted during this phase. Ship's force may be requested to fully or partially set up and demonstrate this equipment to support inspection.

c. Capstans.

d. Superstructure (SSBN/SSGN). This may take several hours and requires one dedicated ship's force escort.

e. Mooring lines.

f. All life lines and stanchions.

g. Towing equipment (SSN). This will require entry into the Sonar Sphere for 688 class. Gas Free services must be arranged ahead of time to allow entry as soon as possible on the Open and Inspect day.

h. Retractable Cleat/Bullnose (if accessible).

i. TB-16 Towed Array valve stack flush per MRC.

j. J-Bar davit setup and inspection of associated components, including weight test record review.

8-5. Weapons Shipping, Loading, and Handling for Combined Trials. This is conducted prior to the Combined Trials underway. See Chapter 2.

a. Prerequisites:

(1) One shape for each weapon the ship is capable of launching should be in the torpedo room, if possible. The torpedo room should be clear for demonstration of shipping, unshipping, and cross-room weapon indexing.

(2) The torpedo room and topside should be rigged for weapons shipping with all shapes in the torpedo room and one shape on the shipping line ready to off-load when the Weapons Inspector arrives.

b. Required Inspection Points:

(1) Inspect the shipping line (accomplished during shipping evolutions).

(2) Shipping evolution will consist of off-loading each shape one at a time, changing shipping harnesses on the pier (if applicable) and then on-loading the shape.

(3) Demonstration of cross-room shipping throughout the torpedo room, to all stows and load lines.

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CHAPTER NINE
DAMAGE CONTROL GUIDANCE NOTES FOR DEPARTMENT HEADS, DIVISION OFFICERS AND SUPERVISORS

9-1. Preparations.

a. On arrival, provide the Inspector a package tailored to the Damage Control (DC) inspection area containing the items listed below. This can be in a combined Senior Member binder.

(1) The DC PMS Accomplishment Matrix from the INSURV website filled out with dates from SKED.

(2) Provide a copy of the most recently completed DC Equipment inventory from the SSM.

(a) 688 class: SSM 4-6-6 Table 1.
(b) 21 class: SSM 4-6-6 Table 1.
(c) 774 class: SSM 4-6-5 Table 5.
(d) SSBN/SSGN class: SSM 4-6-6 Tables 1 through 4 (only repair station inventories required).

(3) Copy of the OOC Log.

(4) List of equipment for which PMS coverage is missing or inadequate.

(5) Copy of the inspection agenda.

(6) Copy of the CO Letter of Concerns.

b. Ensure the following items are available for the underway portion of the inspection.

(1) Scale to weigh CO2 and AFFF extinguishers per MRC.

(2) Scale to weigh PKP extinguisher CO2 cartridges per MRC.

(3) Scale to weigh LiOH canisters per MRC.

(4) Scale to weigh Portable AFFF Injection Units per MRC (if applicable). Ensure the coupling fitting required for MRC 6641/A-22R is available.

(5) Scales should be configured to hang from the overhead for ease of weighing. If the ship does not have one or more of the scales listed above, arrangements must be made to borrow calibrated scales for the underway period. Missing scales are a significant deficiency.

(6) Ensure SCBA charging hose and quick charge assemblies held onboard (including any in supply) are available for inspection.

9-2. Inspection Routine.

a. The inspection is material oriented and normally consists of two phases: The underway phase and the open and inspect phase. The underway phase commences early on the first day and involves a thorough inspection of DC equipment. The DCPO and a helper should plan on accompanying the Inspector. The DCPO must be off of the watchbill during the underway period. Additionally, another assistant should be designated either from off-going watch standers or someone off the watchbill during the underway period.

b. PMS MRCs are the primary references for equipment inspection. NAVSEA technical manuals, equipment technical manuals, TYCOM's directives, Naval Safety Center checklists and Hazard Reviews, NAVSEA Damage Control and Firefighting web site Tips, General Overhaul Specifications for Deep Diving SSBN/SSN Submarines and General Specifications for U.S. Naval Ships are also used. Approved procedures will be followed for all aspects of the inspection.

c. Prior to submerging, the Ship's Diving Officer will brief the Senior Inspector concerning all rig for dive deficiencies. Following the dive he will brief the Equilibrium Polygon as directed by the Senior Inspector.

d. The Oxy-Acetylene cutting rig will be inspected by the NEP Inspector. The division responsible for that equipment (typically Machinery division) should contact the NEP Inspector to arrange the check.

9-3. Underway Phase. The DC Technical Assistant (DC TA) will coordinate with the DCPO to arrange the following checks during the underway:

a. The DC TA will inspect all fire extinguishers and fire fighting stations using the applicable MRCs.

b. The DC TA will observe operation of all portable and fixed submersible pumps providing pressure to the drain suction main, where the drain system will direct the water either overboard or to an internal sump/tank as desired. For portable pumps, water from a fire hose (this can satisfy the requirement to pressurize at least one hose/compartment) will be directed to a bilge, ultrasonic sink, or other suitable container while taking suction with the submersible pump.

c. At least one fire hose per compartment will be pressurized and tested, as the DC TA elects.

d. Turn on and inspect all DC lights (N/A 774, emergency lights will be checked during the DC inspection) and provide a list of any discrepancies (inspector does not need to be present for non-774 DC lights). The DC TA will spot check operability and stowage of Battle Lanterns and DC Flashlights.

e. Inspect DC equipment, including fire extinguishers, oxygen candles (each furnace will be lit off in coordination with the Auxiliaries inspector), and LIOH canisters and curtains.

f. Inspect watertight doors, low pressure door (SSN 21 class), and QAWTD (SSN 21 class). Inspect flood control doors.

g. The DC TA will inspect breathing protection equipment, including SCBAs, EABs, and MCU-2Ps in accordance with the MRCs.

h. The DC TA will inspect Band-it kits, Tool Rolls, and Material Bags in accordance with the MRCs.

i. The DC TA will verify photoluminescent labeling in accordance with the relevant ShipAlt and/or MRC.

j. The DC TA will inspect Steam Suits (casualty and training) in accordance with the MRCs and SSM.

k. The DC TA will inspect DC Red Devil blowers and associated equipage in accordance with the MRCs.

l. The DC TA will inspect Smoke Curtains in accordance with the MRCs.

m. The DC TA will inspect and operationally test NFTIs in accordance with the MRCs.

n. For SCBA equipped ships, the DC TA will check the operation of the auto stop valves per the MRC. Also, he will inspect the charging filter per the MRC if the differential pressure indicator is extended (N/A 774).

o. For SSN 21 class, conduct AFFF bilge sprinkling PMR MRC 5551 S-1 on one set of AFFF/FMSW Powertrol valves.

9-4. Open and Inspect Phase. Some or all of the following items will be accomplished based on inspection results during the underway phase.

a. Inspect the AFFF concentrate level, fill tube, and downtube assembly on an overweight or underweight AFFF extinguisher.

b. Have DC lights turned on for the MP inspector to check DC lights in the reactor compartment (N/A 774).

c. For SSN 21 and 774 class, inspect one swing check valve per MRC 5551/039 60M-2 (21) or 60M-9 (774).

d. Other evolutions based on inspection results.

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CHAPTER TEN
HABITABILITY GUIDANCE NOTES FOR EXECUTIVE OFFICER AND CHIEF OF THE BOAT

10-1. Preparations.

a. On arrival, provide the Inspector a package tailored to the Habitability (HB) inspection area containing the items listed below. This can be in a combined Senior Member binder.

(1) Documentation outlining your Zone Inspection program.

(2) Lists, in Word format on CD, for the following:

(a) Damaged Formica.
(b) Damaged Furniture covers.
(c) Broken locker locking devices or hinges.
(d) Damaged deck coverings, tile, & terrazzo.
(e) Damaged bunk curtains/rails.
(f) Mattresses needing replacement.
(g) Damaged Bunk Pans (inspect all bunk pans before the Inspection).

(3) Lists, in Word format on CD, for the following, along with any deficiencies associated with them:

(a) Vertical ladder listing.
(b) Non-vertical ladder listing.
(c) Scuttle/non-watertight hatch listing.
(d) Joiner door listing.

(4) Copy of the OOC Log.

(5) List of equipment for which PMS coverage is missing or inadequate.

(6) Copy of the inspection agenda.

(7) Copy of the CO Letter of Concerns.

10-2. Inspection Routine.

a. The inspection is material oriented. It normally consists of a tour of the ship habitability areas by the Senior Member and the COB. The berthing inspections can usually be

accomplished in two periods during the outbound and inbound Maneuvering watches. No personnel will be in the bunks during the inspection of a given berthing area. If the COB must be topside for portions of the watch, an alternate CPO who is present for the entire walkthrough may cover for the COB. The Inspector will note the cleanliness, storage, and material condition of the spaces. The COB will give the list of deficiencies noted to the Senior Member on a CD as soon as practical. At some point during the submerged or surfaced portions, the Senior Member and COB will inspect non-berthing habitability areas, including heads. Of note, one of the most common deficiencies in berthing is unauthorized bedding, particularly pillows (only feather, jailhouse ticking pillows permitted).

b. Areas of habitability concern should be discussed with the Inspector. Include concerns regarding access and stowage modified by SHIPALTs, etc.

10-3. Underway Phase.

a. Surfaced Outbound Testing. Berthing inspection with the COB. Common area inspection may occur anytime during the underway at a point convenient for the Senior Member and COB.

b. Deep Dive Testing. Have all joiner, watertight, low pressure (SSN 21 class), and QAWTD (SSN 23) cycled at test depth. Report any that stick or do not operate properly. The Habitability Inspector does not need to be present.

c. Surfaced Inbound Testing. Berthing inspection with COB.

10-4. Open and Inspect Phase. Normally nothing.

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CHAPTER ELEVEN
SUPPLY GUIDANCE NOTES FOR DEPARTMENT HEADS, DIVISION OFFICERS AND SUPERVISORS

11-1. Preparations. On arrival, provide the Inspector a package tailored to the Supply (SP) inspection area containing the following items:

a. Copies of any applicable CO or Engineer's Temporary Standing Orders with supporting documentation.

b. Copy of the OOC Log.

c. List of equipment for which PMS coverage is missing or inadequate.

d. Copy of the inspection agenda.

e. Copy of the CO Letter of Concerns.

11-2. Inspection Routine.

a. The inspection is material oriented; however, key records and programs needed to support the ship's material condition are reviewed. Upon completion of the inspection, the findings are debriefed.

b. The following equipment will be inspected:

(1) Dishwasher.

(2) Sanitizing sinks.

(3) Deep fat fryer including accomplishment of the deep fat fryer high temperature trip test IAW MRC procedures. This test may require new grease prior to being performed. (This will be performed in-port)

(4) Grills and ovens.

(5) Grease interceptor hood (GIH)/Gaylord hood system IAW MRC procedures. (This will be performed in-port)

(6) TDU and associated equipment (Note: TDU should be left flooded at the completion of TDU operations prior to the

deep dive). This portion of the inspection is coordinated with the Auxiliaries inspector.

(7) Soft ice cream freezer/dispenser.

(8) Pantry warming oven.

(9) Reefer door emergency release mechanism.

(10) Ice maker.

(11) Humidity proofer.

(12) All portable equipment, such as meat slicer and tenderizer.

(13) All permanently mounted equipment, such as the food mixing machine and steam kettle.

(14) All dry and refrigerated provisions stowages.

(15) The galley and messing areas.

(16) Galley Fire suppression systems such as the Aqueous Potassium Carbonate (APC) system and associated ductwork and equipment IAW MRC procedures. (Requires the APC system to be tagged out).

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CHAPTER TWELVE
MEDICAL GUIDANCE NOTES FOR DEPARTMENT HEADS, DIVISION OFFICERS AND SUPERVISORS

12-1. Preparations.

a. On arrival, provide the Inspector a package tailored to the Medical (MD) inspection area containing the items below:

(1) A list of medical lockers, narcotics stowage locations, first aid lockers, gun bags, oxygen resuscitator(s), litters and personnel transfer equipment, and portable atmosphere monitoring equipment.

(2) A SAMs generated master inventory.

(3) Copies of any applicable CO or Engineer's Temporary Standing Orders with supporting documentation.

(4) Copy of the OOC Log.

(5) List of equipment for which PMS coverage is missing or inadequate.

(6) Copy of the inspection agenda.

(7) Copy of the CO Letter of Concerns.

12-2. Inspection Routine.

a. The inspection is material oriented. The medical area inspection is not dependent upon any special ship condition. Upon completion of the inspection, the findings are debriefed.

b. PMS MRCs are the primary references for equipment inspection. OPNAV instructions, NAVSEA technical manuals, equipment technical manuals, TYCOM's directives, and General Overhaul Specifications for Deep Diving SSBN/SSN Submarines are also used.

c. During the course of the inspection the following items will be viewed in the company of the ship's Medical Department Representative:

(1) Medical spaces.

(2) Medical material stowage and lockers.

(3) Narcotic stowage.

(4) First aid lockers.

(5) Oxygen resuscitators and cylinders.

(6) Litters and personnel transfer equipment.

(7) Portable atmosphere monitoring equipment.

(8) Medical and surgical areas, including emergency lighting.

(9) Potable water hose lockers and hoses.

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CHAPTER THIRTEEN
OCCUPATIONAL SAFETY AND HEALTH GUIDANCE NOTES FOR DEPARTMENT HEADS, DIVISION OFFICERS, AND SUPERVISORS

13-1. Preparations.

a. On arrival, provide to the Inspector a package tailored to the Occupational Safety and Health (OSH) inspection area containing the items below.

(1) Copies of any applicable CO or Engineer's Temporary Standing Orders with supporting documentation.

(2) Copy of the OOC Log.

(3) List of equipment for which PMS coverage is missing or inadequate.

(4) Copy of the inspection agenda.

(5) Copy of the CO Letter of Concerns.

b. The below listed OSH items will be reviewed during the course of the inspection:

(1) Local safety program instructions (local OSH instructions are not necessary unless the submarine deviates from reference (e)).

(2) Records of all OSH training.

(3) Records of Safety Council meetings.

(4) Records of ship conducted safety walk-throughs (zone inspections).

(5) Accident injury reports.

(6) Mishap reports.

(7) NAVOSH Hazard Abatement log.

(8) Material Control Program and HAZMAT Inventory.

(9) Heat Stress survey records.

(10) Baseline and any periodic industrial hygiene surveys (including most recent shipboard noise survey).

(11) Off-Duty Safety Program.

(12) Asbestos Control Program (all submarines are required to comply with Appendix B1-B of reference (e), Standard Operating Procedures for Ship's Force Protocol).

(13) Back Injury Training.

(14) Eye Wash Stations.

(15) Gas-Free Engineering.

(16) Respiratory Protection.

(17) Hearing Conservation.

(18) Lead Control Program.

(19) Sight Conservation.

(20) Traffic Safety.

(21) Medical Surveillance including hearing, asbestos, food service, etc.

13-2. Inspection Routine.

a. The inspection is material oriented; however, NAVOSH program areas are reviewed to verify their implementation.

b. PMS MRCs and reference (e) are the primary references for equipment inspection. Program evaluation is conducted based upon reference (e). NAVSEA technical manuals, equipment technical manuals, TYCOM's directives, and General Overhaul Specifications for Deep Diving SSBN/SSN Submarines are also used.

c. The OH Inspector will conduct a walk-through of the ship. The following items will be viewed and requested to be demonstrated as applicable:

(1) Eyewash Stations.

(2) Gas-Free Engineering equipment.

(3) Heat stress meters and thermometers.

(4) Compressed gas cylinder stowage.

(5) Shop safety (e.g. deck striping and non-skid, equipment grounding, personal protective equipment, and warning signs).

(6) Hazardous Equipment (Lathe, Drill Press, Grinders).

(7) Material Control stowage and use. Specifically: flammables, acids, corrosives, and calcium hypochlorite. HAZMAT lockers should be unlocked.

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CHAPTER FOURTEEN
ENVIRONMENTAL PROTECTION GUIDANCE NOTES FOR DEPARTMENT HEADS, DIVISION OFFICERS, AND SUPERVISORS

14-1. Preparations.

a. On arrival, provide to the Inspector a package tailored to the Environmental Protection (EP) Program inspection areas containing the items listed below.

(1) Copies of any applicable CO or Engineer's Temporary Standing Orders with supporting documentation.

(2) Copy of the OOC Log.

(3) List of equipment for which PMS coverage is missing or inadequate.

(4) Copy of the inspection agenda.

(5) Copy of the CO Letter of Concerns.

b. The below listed documents will be reviewed during the course of the inspection to ensure the following are in compliance with reference (f):

(1) Initial and Annual Environmental Protection Training.

(2) Oily Waste Procedures.

(3) Oil and Hazardous Substance Spill Contingency Plan.

(4) Oil equipment operator training.

(5) Medical Waste handling, stowage and disposal training.

(6) Ozone Depleting Substances (ODS) logs, equipment and ODS Handler's EPA Training/Certification.

(7) Solid Waste handling, stowage and disposal training.

(8) Afloat Environmental Coordinator training.

(9) Plastic Waste Processing Procedures.

14-2. Inspection Routine.

a. The inspection is material oriented; however, EP program areas are reviewed to verify their implementation.

b. PMS MRCs are the primary references for equipment inspection. Program evaluation is conducted based upon reference (f). NAVSEA technical manuals, equipment technical manuals, and TYCOM's directives are also used.

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CHAPTER FIFTEEN
SURVIVABILITY AND ESCAPE GUIDANCE NOTES FOR DEPARTMENT HEADS, DIVISION OFFICERS AND SUPERVISORS

15-1. Preparations.

a. On arrival, provide the Senior Member a package tailored to the Survivability and Escape (SE) inspection area containing the items listed below. This can be in a combined Senior Member binder.

(1) A copy of all OSARs in the past twelve months showing any hatch or watertight door deficiencies (corrected or still outstanding).

(2) The SE PMS Accomplishment Matrix from the INSURV website, filled out with dates from SKED.

(3) An inventory of all oxygen candles, candle furnaces, LiOH canisters and/or ExtendAir canisters, and Battelle curtain kits on board, listed by compartment.

(4) Copies of any applicable CO or Engineer's Temporary Standing Orders with supporting documentation.

(5) Copy of the OOC Log.

(6) List of equipment for which PMS coverage is missing or inadequate.

(7) Copy of the inspection agenda.

(8) Copy of the CO Letter of Concerns.

b. Ensure the following items are available for the underway portion of the inspection.

(1) Scale to weigh LiOH canisters per MRC.

(2) Hale-Hamilton gage to test Stole Charging Valves per MRC 5940/S-1R.

(3) Copy of the most recent SEIE suit inventory.

15-2. Inspection Routine.

a. The inspection is material oriented and normally consists of two phases: The underway phase and the open and inspect phase. The underway phase commences early on the first day. Since multiple work centers are involved in maintaining and operating SE equipment, the COB will coordinate with the Senior Member to arrange the checks listed below (if the COB delegates this responsibility, the selected CPO must be empowered to work across departmental and divisional lines).

b. PMS MRCs are the primary references for equipment inspection. NAVSEA technical manuals, equipment technical manuals, TYCOM's directives, Naval Safety Center checklists and Hazard Reviews, NAVSEA Damage Control and Firefighting web site Tips, General Overhaul Specifications for Deep Diving SSBN/SSN Submarines and General Specifications for U.S. Naval Ships are also used. Approved procedures will be followed for all aspects of the inspection.

15-3. Underway Phase.

a. Surfaced Outbound Transit. Inspect upper hatches as feasible. It is particularly important for submarines without shore power trunks that the upper hatch of the escape trunk where shore power will be installed upon return to port receives its inspection.

b. Pre-Deep Dive Submerged Assessments.

(1) Inspect each escape trunk/LET/LOT (774 configured for escape) after submergence and prior to proceeding below 200 feet: Lower access/entrance hatch will be inspected, trunk material condition and equipment will be checked, sea pressure gage will be placed on service (774 LOT and LET pressure gages outside trunk). The 31MC circuit will be tested in accordance with the applicable MRC. For all trunks, the Senior Member will observe SEPIRB testing in accordance with applicable MRC and will inventory the launch hardware. For one trunk designated by the Senior Member, the launch hardware will be rigged and a SEPIRB installed upside down to avoid removal of the launch tab. The Hale-Hamilton pressure gage will be used to take pressure readings from each Stole Charging Valve in accordance with applicable PMS. These checks involve personnel from at least three divisions, and inefficient execution of these inspections will delay completion of the Material Inspection since the gages must be tested prior to operating deeper than 200 feet on most ship classes.

d. Underway DC checks. The ship's INSURV Coordinator will coordinate with the Senior Member to arrange the following additional checks during the underway:

(1) The Damage Control Technical Assistant (DC TA) will inspect LiOH canisters and Battelle curtains.

(2) The Senior Member will observe conduct of routine PMS on the desalinators, crash bags, Analox Disabled Submarine atmosphere monitors, and a spot check of SEIE suits in designated stowage lockers.

(3) The Senior Member will cycle and inspect all lower hatches.

(4) For Improved Powered Hatch Operator (IPHO) equipped ships (21/726/774), the crew will assemble IPHO parts (without breaking any boundaries) for one hatch (Senior Member designated) for Senior Member inspection.

15-4. Open and Inspect Phase. Some or all of the following items will be accomplished based on inspection results during the underway phase.

a. The Senior Member will inspect all upper hatches not already inspected during the outbound transit. This will require the angle gage to check popup (note this is not the submerged pressurized popup test, but the popup using the routine hatch operating procedures for 688s). For the bridge hatch, this involves significant coordination to secure shore phones, SIPRNET/NIPRNET connectivity, and any other lines passing through the upper bridge hatch. The first hatch should be ready for inspection upon Senior Member arrival on day four, with the other hatches to follow as efficiently and expeditiously as possible.

b. Hatch/Watertight door inspection by PMT. Hatch/door selection based on review of OSARs and underway inspections. As a minimum, PMT will be asked to evaluate any seating surface defects the Senior Member found.

c. Other evolutions based on inspection results.

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CHAPTER SIXTEEN
INFORMATION SYSTEMS GUIDANCE NOTES FOR DEPARTMENT HEADS, DIVISION OFFICERS AND SUPERVISORS

16-1. Preparations.

a. On arrival, provide the Inspector a package tailored to the Information System (IS) inspection area containing the items below:

(1) Copies of the LAN System Security Authorization Agreements (SSAA) or all valid Interim Authorities to Operate (IATO) for SUBLAN and future LAN systems.

(2) Copies of designation letters for the Information System Security Manager (ISSM), Information System Security Officer (ISSO) and LAN Administrator.

(3) Copies of any applicable CO or Engineer's Temporary Standing Orders with supporting documentation.

(4) Copy of the OOC Log.

(5) List of equipment for which PMS coverage is missing or inadequate.

(6) Copy of the inspection agenda.

(7) Copy of the CO Letter of Concerns.

b. The documents listed below will be reviewed during the course of the inspection. They should remain in their normal stowage location until requested by the Inspector:

(1) System Trouble Log or Database.

(2) Disaster Recovery procedures.

(3) Anti-Virus update procedures for GOTS-D, COMPOSE and higher LAN configurations.

16-2. Inspection Routine.

a. The inspection is focused on material condition. PMS MRCs, Ship Systems Manuals (SSM), and technical manuals are the primary references for equipment inspection. TYCOM's directives, General Overhaul Specifications for Deep Diving

SSBN/SSN Submarines and General Specifications for U.S. Naval Ships are also used. Approved procedures will be followed for all aspects of the inspection.

b. Any equipment deficiencies that cannot be processed electronically (for inclusion into final report and upload into the ship's CSMP) due to time constraints will be passed directly to the work center supervisor.

c. The material condition of the LAN system is determined largely through the accomplishment of PMS and visual material inspections. The required PMS items to be accomplished are listed in the Inspection Guide for these systems, which are available on the INSURV web site. The division LPO should coordinate the schedule for conducting these PMS items with the Inspector (and appropriate assistants for SSNs) as soon as possible during the inspection to ensure they are completed during the inspection.

16-3. Open and Inspect Phase. The LAN System will be evaluated during the inport phase of the inspection starting when the ship returns from the underway phase of INSURV and continuing to the completion of day four Open/Inspects.

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CHAPTER SEVENTEEN
DIVER GUIDANCE NOTES FOR DEPARTMENT HEADS, DIVISION OFFICERS, AND SUPERVISORS

17-1. Preparations.

a. On arrival, provide the Inspector a package tailored to the Diver (DV) inspection area containing the items below:

(1) Copies of diver qualification certificates for all ship's Divers.

(2) AEL for all Diver Gear.

(3) Current Dive Gear Inventory.

(4) Diver PMS Binder.

(5) All gage calibration and dive bottle hydrostatic documentation.

(6) Ship's copy of the U.S. Navy Diving Manual.

(7) Copies of any applicable CO or Engineer's Temporary Standing Orders with supporting documentation.

(8) Copy of the OOC Log.

(9) List of equipment for which PMS coverage is missing or inadequate.

(10) Copy of the inspection agenda.

(11) Copy of the CO Letter of Concerns.

17-2. Inspection Routine.

a. The inspection is focused on material condition. PMS MRCs, Ship Systems Manuals (SSM), and technical manuals are the primary references for equipment inspection.

b. Any equipment deficiencies that cannot be processed electronically (for inclusion into the final report and upload into the ship's CSMP) due to time constraints will be passed directly to the work center supervisor.

c. The material condition of the diver systems is determined largely through visual material inspections. The division LPO should coordinate a time for conducting these visual inspections to ensure they are completed during the inspection.

17-3. Underway Phase.

a. Dive gear will be evaluated during the underway phase of the inspection starting when the ship departs. The division should be prepared to present the following equipment for inspection:

(1) Buoyancy compensating vests.

(2) Octopus regulators.

(3) Pressure gages and Depth gages.

(4) SCUBA tanks (Singles and Doubles).

(5) Tending lines.

(6) Dive watches.

17-4. Open and Inspect Phase.

a. INSURV will provide the list of equipment to be inspected during the open and inspect phase to the ship's INSURV Coordinator during the underway phase. Diver inspections will generally be completed prior to the Open/Inspect Phase. Diver Equipment not inspected during the underway period will be inspected during this phase on the Open and Inspect list provided to the ship's INSURV coordinator. Equipment should to ready for inspection prior to the Inspector's return the morning following the underway phase, usually at 0800. The significance of being completely ready at this time cannot be over emphasized.

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